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Serial No. 168

**DEPARTMENT OF COMMERCE**

**U. S. COAST AND GEODETIC SURVEY**

**E. LESTER JONES, Director**

**RESULTS OF OBSERVATIONS MADE AT THE UNITED STATES  
COAST AND GEODETIC SURVEY MAGNETIC OBSERVATORY  
AT VIEQUES, P. R., 1917 AND 1918**

**BY**

**DANIEL L. HAZARD**

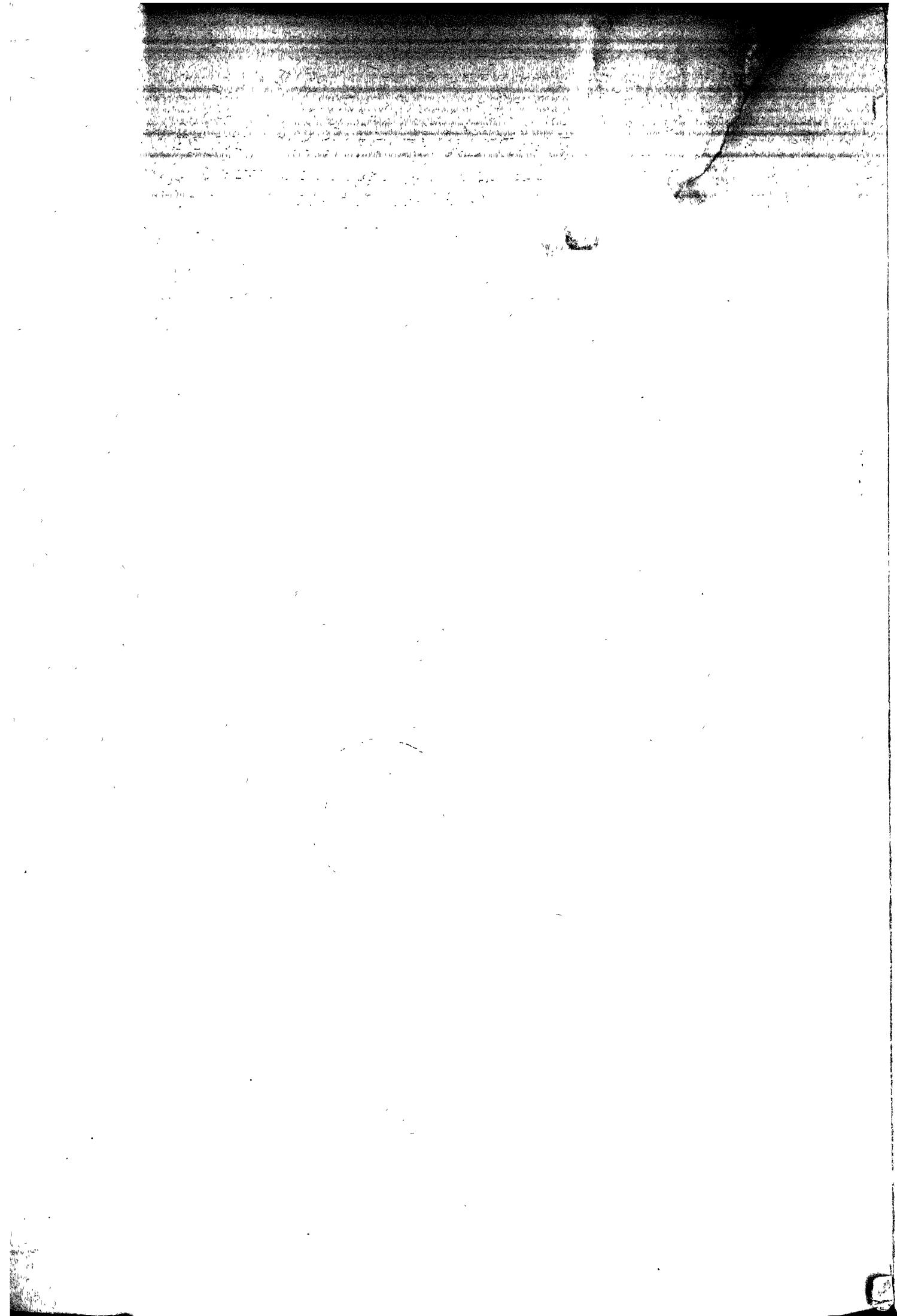
**Assistant Chief, Division of Terrestrial Magnetism**



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**WASHINGTON  
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1922**



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## RESULTS OF OBSERVATIONS MADE AT THE UNITED STATES COAST AND GEODETIC SURVEY MAGNETIC OBSERVATORY AT VIEQUES, P. R., 1917 AND 1918.

### INTRODUCTION.

Latitude,  $18^{\circ} 08'.8$  N.; longitude,  $65^{\circ} 26'.9$  W.; elevation, 20 meters (65 feet).

In February, 1903, a magnetograph was installed in a room in Fort Isabel Segunda, on Vieques Island, P. R., and variation observations were continued there until April, 1907. At that time, suitable buildings having been constructed for the observatory work, the instruments were transferred to the new site, about five-eighths of a mile (1 kilometer) west of the old fort. A general description of the new buildings will be found in the "Results for 1907 and 1908." The methods of observing are explained in "Directions for Magnetic Measurements," by D. L. Hazard, published in 1911.

The division of terrestrial magnetism of the Coast and Geodetic Survey includes both the field and office work. D. L. Hazard was chief of this division for the two years covered by this publication. The work of the Porto Rico Observatory was carried on by Franklin L. Adams, magnetic observer, from September, 1916, to April, 1918, when he was succeeded by Wallace M. Hill, magnetic observer. The office computations and preparation of the results for publication were in charge of the writer, assisted by J. M. Seybolt, W. N. McFarland, O. S. Hill, and Frank Neumann, computers.

Up to the end of 1914 each hourly value of  $D$ ,  $H$ , and  $Z$  in the monthly tabulations represented the momentary value of the quantity for the specified hour, local mean time. This was in accordance with the practice adopted before continuous photographic registration came into use, when eye readings were made once an hour. This method had the disadvantages that only a very small portion of the observational data was utilized, undue weight was given to a disturbance which happened to fall exactly at the hour, and the results at one observatory could not be compared in detail with those of another, because the use of local mean time resulted in the publication of nonsimultaneous values.

Beginning with 1915 the published hourly values represent the average values for successive periods of an hour, beginning at midnight of the specified standard meridian time (sixtieth in the case of Porto Rico). Thus, a value in the column headed  $1^{\text{h}} - 2^{\text{h}}$  represents the average value for the hour beginning at  $1^{\text{h}}$  and ending at  $2^{\text{h}}$ , sixtieth meridian mean time. In this way many of the defects of the old method are eliminated. At the same time the use of a special reading scale makes it possible to determine the average ordinate without a material increase in the time and labor involved as compared with the old method. This scale is similar to the ones described by Dr. Schmidt in "Ergebnisse der Magnetischen Beobachtungen in Potsdam im Jahre 1905" and by J. A. Fleming in Terrestrial Magnetism for December, 1919. It consists of a piece of plate glass about 10 cm. wide and 18 cm. long, on which are ruled two sets of lines at right angles to each other. The lines parallel to the long sides (vertical lines) are 20 mm. apart, corresponding to the distance between hour breaks on the Eschenhagen magnetogram, and those parallel to the short sides (horizontal lines) are 10 mm. apart. The second space from the bottom is subdivided into millimeters by short lines midway between the vertical lines. A reading is made by laying the scale on the magnetogram with the ruled surface next to the paper, the horizontal lines parallel to the base line, the vertical lines crossing the base line at the hour marks, and the space subdivided to millimeters including the base line. The scale is then moved up or down until one of the horizontal lines is set for the average ordinate of a portion of the curve included between the two adjacent vertical lines. With

## PORTO RICO MAGNETIC OBSERVATORY.

a little practice this can be done rapidly and with surprising accuracy (except in cases of great disturbance) by making equal the areas above and below the horizontal line inclosed by it, the curve, and the two vertical lines. The number of whole centimeters of the ordinate is read at the end of this horizontal line, and the fraction of a centimeter is read to tenths of a millimeter in the space subdivided to millimeters, in which the base line is included.

The scale is made wide enough to cover the space of four hours, so that four ordinates can be read with only such lateral shifting of the scale as may be required to allow for slight irregularities in the distance between hour marks. One vertical space is divided in the middle to permit separate readings of the two halves of a disturbed hour. In the case of rapid fluctuations a further subdivision may be necessary to secure the desired accuracy. It will be found convenient to use a drawing board and T-square with this form of scale. With the magnetogram placed on the drawing board so that the base lines are parallel to the front edge, the T-square can be used as a guide to prevent lateral motion when sliding the scale up and down.

## INSTRUMENTS.

## VARIATION INSTRUMENTS.

The magnetograph is of the Eschenhagen pattern and consists of *D*, *H*, and *Z* variometers mounted east of the recording apparatus. Increasing ordinates (upward motion of the curves) correspond to increasing west declination, increasing *H* and increasing *Z*. Variations in temperature were obtained from the record of the photographically recording thermograph inclosed in the *Z* variometer. The seasonal variation was small, and the range in the course of a day was usually not more than two or three tenths of a degree.

*Monthly and annual range in temperature (centigrade).*

Month.	1917				1918			
	Maximum.	Minimum.	Mean.	Range.	Maximum.	Minimum.	Mean.	Range.
January.....	° 25.6	° 23.6	° 24.8	° 2.0	° 26.6	° 23.9	° 25.3	° 2.7
February.....	26.0	24.2	25.1	1.8	26.1	24.5	25.5	1.6
March.....	26.0	24.6	25.5	1.4	26.6	24.8	25.4	1.8
April.....	27.7	25.1	26.5	2.6	27.6	25.6	26.5	2.0
May.....	28.6	26.8	27.8	1.8	28.3	25.9	26.8	2.4
June.....	28.9	27.2	28.4	1.7	28.6	26.7	27.7	1.9
July.....	29.0	28.3	28.7	0.7	31.3	27.5	28.3	3.8
August.....	29.2	28.3	28.7	0.9	29.7	28.1	29.0	1.6
September.....	29.4	27.8	28.7	1.6	29.7	28.1	28.8	1.6
October.....	29.0	27.8	28.4	1.2	29.0	27.4	27.8	1.6
November.....	28.7	26.8	27.8	1.9	27.9	25.6	27.0	2.3
December.....	27.4	23.8	25.8	3.6	27.2	24.3	26.1	2.9
Year.....	29.4	23.6	27.2	5.8	31.3	23.9	27.0	7.4

## ABSOLUTE INSTRUMENTS.

India magnetic survey pattern No. 31; Schulze earth inductor No. 1; dip circle No. 5676.

*Seismograph*.—A Bosch-Omori seismograph was kept in continuous operation. The recorded seismic disturbances will be found tabulated on page 100.

*Time*.—Time observations were made about once a week with a sextant, using the method of equal altitudes of the sun.

## CONSTANTS OF THE MAGNETOGRAPH.

## DECLINATION.

*Scale value.*—One millimeter on the magnetogram =  $1'.02$ .

## HORIZONTAL INTENSITY.

*Scale value.*—Deflection observations at two distances were made once a month. Up to the end of August, 1917, the results show the usual variation of scale value with ordinate, represented by the following formulas, in which  $h$  is the ordinate in millimeters.

$$\begin{aligned} \text{January} &\dots \epsilon_h = 2.43\gamma + 0.005h \\ \text{February-August} &\dots \epsilon_h = 2.58\gamma + .005h \end{aligned}$$

The change in the constant term was caused by a change in the adjustment of the baseline mirror on February 1. For the rest of the year the results are irregular. On December 31 it was found that the  $H$  magnet was touching the side of the damping box. It seems probable that there was some restriction of the motion of the magnet when deflected, although at other times the motion appears to have been free. The results for the first three months of 1918 are represented by the formula:  $\epsilon_h = 2.45\gamma + 0.005h$ .

This also fits the results for October 31 and November 30. The only readjustment was on December 1, but there was apparently some slight restriction on the motion of the magnet during the intervening months, which was removed by the earthquake of October 12. The adopted values are based on the monthly mean ordinates.

*H scale value.*

Date.	$h$	Observed.	Adopted.	Date.	$h$	Observed.	Adopted.
1917.	mm.	$\gamma$	$\gamma$	1917.	mm.	$\gamma$	$\gamma$
Jan. 2.	36.4	2.62	2.59	Dec. 17.	-27.6	3.82	2.61
Jan. 31.	21.6	2.54	2.58	Dec. 29.	-6.2	4.42	2.64
Feb. 28.	16.6	2.65	2.62				
Mar. 14.	8.4	2.61	2.62	1918.			
Mar. 31.	20.1	2.62	2.62	Jan. 8.	6.4	2.48	2.44
Apr. 30.	-2.6	2.57	2.59	Jan. 30.	-11.8	2.39	2.42
May 15.	-1.8	2.57	2.56	Feb. 13.	-30.4	2.30	2.39
May 31.	-3.2	2.55	2.56	Feb. 28.	-4.4	2.42	2.39
June 15.	-9.0	2.54	2.54	Mar. 30.	-8.4	2.40	2.39
June 29.	-6.9	2.55	2.54	Apr. 30.	-20.5	2.40	2.39
July 18.	-10.1	2.55	2.52	May 30.	-22.0	2.38	2.39
July 31.	-27.9	2.44	2.45	June 29.	-19.0	2.35	2.39
Aug. 18.	-25.6	2.43	2.45	July 13.	-24.2	2.45	2.41
Aug. 31.	-13.7	2.54	2.45	July 31.	-25.0	2.41	2.41
Sept. 17.	-13.6	2.60	2.48	Aug. 31.	-17.8	2.54	2.51
Oct. 3.	-28.5	2.51	2.52	Sept. 28.	-30.8	2.65	2.61
Oct. 17.	-24.6	2.60	2.52	Oct. 31.	-50.0	2.19	2.22
Oct. 31.	-25.5	2.60	2.52	Nov. 30.	-49.4	2.19	2.22
Nov. 17.	-27.8	2.64	2.52	Dec. 6.	1.0	2.41	2.39
Nov. 30.	-22.2	2.52	2.52				

*Temperature coefficient.*—The same value was used as in previous years, namely:

$$q = 0.00026 \text{ or } 7.5\gamma \text{ for } 1^\circ \text{ C.}$$

## VERTICAL INTENSITY.

*Scale value.*—Deflection observations at two distances were made at least once a month.

A factor of the form  $\left(1 + \frac{P}{r^2}\right)$  was introduced in the computation formula to take account of the dissimilarity of the  $D$  and  $Z$  magnets. The value  $P = 44.4$  was used, and the results for the two distances show satisfactory agreement. Much difficulty was experienced in the operation of the  $Z$  variometer, the tendency of the scale value to increase being a particularly trouble-

## PORTO RICO MAGNETIC OBSERVATORY.

some feature. Changes of adjustment causing change of scale value were made on February 1, April 19, June 22, 29; July 18; August 10, 16, 18, and 31; September 7, 17; October 12, 29, 31; December 29, 1917; January 8, March 30, June 30, July 13, 18, 31; September 28; December 25, 1918.

*Z scale value.*

Date.	Short distance.	Long distance.	Adopted.	Date.	Short distance.	Long distance.	Adopted.
1917.				1917.			
Jan. 2.....	9.46	9.35	9.41	Dec. 17.....	7.46	7.10	7.21
Jan. 31.....	9.63	9.41	9.51	Dec. 29.....	7.69	7.75	7.69
Feb. 28.....	9.63	9.89	9.75	1918.			
Mar. 31.....	9.85	9.64	9.75	Jan. 8.....	6.43	6.25	6.33
Apr. 30.....	4.79	4.89	4.84	Jan. 30.....	5.49	5.53	5.59
May 15.....	5.37	---	---	Feb. 13.....	5.22	---	5.59
May 31.....	5.19	5.15	5.15	Feb. 28.....	5.88	5.96	5.59
June 15.....	5.34	---	5.32	Mar. 30.....	5.60	5.82	5.59
June 29.....	6.34	6.55	6.44	Apr. 30.....	6.54	6.33	6.51
July 18.....	5.67	5.73	5.71	May 30.....	6.55	6.59	6.51
July 31.....	9.17	9.32	9.25	July 2.....	5.60	5.66	5.63
Aug. 18.....	10.70	---	10.70	July 13.....	5.40	5.38	---
Aug. 18.....	4.06	---	4.06	July 20.....	6.74	6.61	6.82
Aug. 31.....	5.09	5.07	5.08	July 31.....	6.93	7.02	6.82
Sept. 17.....	4.08	---	4.08	Aug. 4.....	4.82	4.78	4.93
Oct. 3.....	4.75	4.79	4.77	Aug. 31.....	5.04	5.08	4.93
Oct. 17.....	9.20	9.55	9.37	Sept. 28.....	4.46	4.46	4.46
Oct. 31.....	10.55	10.71	10.63	Oct. 31.....	5.06	5.08	5.06
Nov. 17.....	6.46	6.53	6.53	Nov. 3.....	5.05	5.09	5.08
Nov. 30.....	6.64	6.48	6.53	Nov. 30.....	5.22	5.20	5.21

*Temperature coefficient.*—A redetermination of the *Z* temperature coefficient was made from a comparison of the daily mean ordinates for short periods, during which there was both a rise and fall of temperature. Only a few discordant results could be obtained for 1917, some plus and some minus, and it was concluded to use the same value for that year as for 1915 and 1916, namely,  $q=0$ . The mean of 18 values in 1918 was  $6.1\gamma$ , and after January 8, 1918, the adopted value is:  $q=0.000175$ , or  $6\gamma$  for  $1^\circ C$ .

*Z temperature coefficient.*

Date.	Temperature.			
	Mean.	Range.	R or F.	$q$
1918.	°	°		
Jan. 20-28.....	26.1	0.46	R, F	$9.6\gamma$
Feb. 18-26.....	25.2	0.72	F, R	5.8
May 5-13.....	26.5	0.63	F, R	2.0
May 8-16.....	26.4	0.65	R, F*	15.1
May 12-19.....	26.3	0.59	F, R	10.0
June 1-8.....	27.4	0.43	F, R	21.2
June 15-23.....	27.6	0.53	R	-2.5
July 2-10.....	28.1	0.28	R, F	11.3
July 20-26.....	28.5	0.35	F, R	0.0
Aug. 3-9.....	28.6	0.44	F, R	4.0
Aug. 12-20.....	28.9	0.43	F, R	0.8
Aug. 20-31.....	29.3	0.37	R, F	3.3
Sept. 1-8.....	29.0	0.36	F, R	5.5
Sept. 4-12.....	29.0	0.88	R, F	0.0
Oct. 22-27.....	27.7	0.24	F, R	2.9
Nov. 3-9.....	27.0	1.19	F	5.9
Dec. 18-24.....	25.2	1.44	F	7.1
Dec. 27-31.....	25.6	0.82	R	8.2
				6.1

## ABSOLUTE OBSERVATIONS AND BASE-LINE VALUES.

## DECLINATION.

Absolute observations of  $D$  were made twice a week in 1917 and once a week in 1918, the number of sets being four a week in both years. There were slight changes of base line on July 18 and 31, 1917, and readjustments on October 12 and November 17, 1918, the instrument having been disturbed by the earthquake of October 12.

*Declination base-line values.*

Date.	Observed.	Adopted.	Date.	Observed.	Adopted.	Date.	Observed.	Adopted.
1917.	° /	° /	1917.	° /	° /	1918.	° /	° /
Jan. 3.....	2 58.8W	2 58.6W	July 5.....	2 57.4W	2 57.5W	Jan. 7.....	2 60.0W	2 59.5W
Jan. 5.....	58.8	58.6	July 7.....	57.6	57.5	Jan. 14.....	59.8	59.6
Jan. 13.....	58.4	58.6	July 11.....	57.5	57.4	Jan. 21.....	59.8	59.7
Jan. 18.....	59.0	58.6	July 14.....	57.1	57.4	Jan. 28.....	59.8	59.7
Jan. 20.....	57.8	58.6	July 20.....	58.4	58.0	Feb. 4.....	59.8	59.7
Jan. 23.....	58.4	58.6	July 21.....	58.3	58.0	Feb. 11.....	59.6	59.7
Jan. 27.....	58.4	58.6	July 27.....	58.2	58.0	Feb. 18.....	59.1	59.7
Jan. 30.....	58.6	58.6	July 28.....	57.4	58.0	Feb. 25.....	59.3	59.7
Feb. 3.....	58.6	58.5	Aug. 2.....	59.4	59.2	Mar. 4.....	59.7	59.6
Feb. 8.....	58.4	58.5	Aug. 4.....	59.4	59.2	Mar. 11.....	59.9	59.6
Feb. 10.....	58.4	58.5	Aug. 8.....	59.5	59.2	Mar. 18.....	59.8	59.6
Feb. 14.....	58.5	58.5	Aug. 11.....	59.5	59.2	Mar. 25.....	59.7	59.6
Feb. 17.....	58.5	58.5	Aug. 15.....	59.0	59.2	Apr. 1.....	59.8	59.5
Feb. 21.....	58.9	58.5	Aug. 18.....	59.7	59.1	Apr. 8.....	59.1	59.5
Feb. 24.....	58.8	58.5	Aug. 23.....	59.8	59.1	Apr. 15.....	59.0	59.5
Mar. 3.....	57.9	58.4	Aug. 25.....	59.4	59.1	Apr. 22.....	59.5	59.5
Mar. 7.....	58.4	58.4	Aug. 30.....	59.3	59.1	May 6.....	59.0	59.4
Mar. 10.....	58.2	58.4	Sept. 1.....	59.4	59.0	May 13.....	59.1	59.4
Mar. 14.....	58.5	58.4	Sept. 8.....	59.0	59.0	May 20.....	59.6	59.3
Mar. 17.....	58.4	58.4	Sept. 12.....	58.5	59.0	May 27.....	59.5	59.3
Mar. 21.....	58.7	58.4	Sept. 15.....	58.8	59.0	June 3.....	59.2	59.2
Mar. 24.....	58.6	58.4	Sept. 20.....	58.8	59.0	June 10.....	59.1	59.2
Mar. 29.....	58.6	58.4	Sept. 22.....	59.2	59.0	June 17.....	59.3	59.1
Mar. 31.....	58.9	58.4	Sept. 25.....	58.8	59.0	June 24.....	59.1	59.1
Apr. 4.....	58.3	58.3	Oct. 1.....	59.0	59.0	July 1.....	58.7	59.0
Apr. 7.....	58.3	58.3	Oct. 4.....	59.0	59.0	July 8.....	59.2	59.0
Apr. 11.....	58.0	58.3	Oct. 8.....	59.0	59.0	July 16.....	58.8	58.9
Apr. 14.....	58.4	58.3	Oct. 9.....	59.0	59.0	July 22.....	59.0	58.9
Apr. 18.....	58.0	58.3	Oct. 12.....	58.8	59.0	July 29.....	58.8	58.9
Apr. 21.....	58.0	58.3	Oct. 15.....	58.6	59.0	Aug. 5.....	58.8	58.9
Apr. 25.....	58.1	58.3	Oct. 19.....	59.0	59.0	Aug. 12.....	58.8	58.9
Apr. 26.....	58.5	58.3	Oct. 22.....	59.1	59.0	Aug. 19.....	59.0	59.0
Apr. 28.....	58.8	58.3	Oct. 26.....	59.3	59.0	Aug. 27.....	59.2	59.0
May 2.....	57.8	58.2	Oct. 29.....	58.4	59.0	Sept. 3, 5.....	59.2	59.1
May 5.....	57.8	58.2	Nov. 2.....	59.0	59.0	Sept. 9.....	59.3	59.1
May 9.....	58.2	58.2	Nov. 5.....	58.8	59.0	Sept. 16.....	59.2	59.2
May 12.....	58.4	58.1	Nov. 12.....	58.8	59.0	Sept. 24.....	59.2	59.2
May 16.....	58.3	58.1	Nov. 13.....	58.8	59.0	Sept. 30.....	59.5	59.2
May 19.....	58.2	58.1	Nov. 16.....	59.1	59.1	Oct. 8.....	59.3	59.3
May 23.....	58.4	58.0	Nov. 19.....	58.6	59.1	Oct. 14.....	54.7	55.0
May 26.....	57.8	58.0	Nov. 20.....	59.1	59.1	Oct. 21.....	55.3	55.0
May 31.....	58.1	58.0	Nov. 22.....	56.2	59.1	Oct. 28.....	55.1	55.0
June 2.....	57.7	57.9	Nov. 26.....	58.9	59.1	Nov. 4.....	55.0	55.0
June 6.....	58.1	57.9	Nov. 30.....	58.9	59.1	Nov. 11.....	55.4	55.0
June 9.....	57.4	57.8	Dec. 3.....	59.2	59.2	Nov. 18.....	62.0	61.8
June 11.....	57.6	57.8	Dec. 7.....	59.8	59.2	Nov. 25.....	61.7	61.8
June 16.....	57.3	57.8	Dec. 10.....	59.1	59.2	Dec. 2.....	61.8	61.8
June 20.....	57.4	57.7	Dec. 14.....	59.1	59.2	Dec. 9.....	61.8	61.8
June 23.....	57.3	57.7	Dec. 17.....	58.6	59.3	Dec. 16.....	61.8	61.8
June 26.....	56.5	57.6	Dec. 24.....	59.4	59.3	Dec. 23.....	60.6	61.8
June 30.....	56.9	57.6	Dec. 31.....	59.8	59.3	Dec. 31.....	61.6	61.8

## PORTO RICO MAGNETIC OBSERVATORY.

July, 1918, when the earth inductor was out of order. The results with the earth inductor during the latter part of September and all of October, 1918, appear to be defective.

Great difficulty was experienced in securing and maintaining a satisfactory adjustment of the Z variometer, especially in 1917. In addition to the abrupt changes of base-line value, due to adjustments, jarring of the magnet at the time of scale value deflections, or at the time of the daily attention to the instruments, there was usually a more or less rapid drift in progress, sometimes quite irregular and apparently accentuated at times by a severe magnetic disturbance.

*Abrupt changes of Z base-line value.*

Date.	Hour.	Amount.	Cause.	Date.	Hour.	Amount.	Cause.				
1917.											
Jan. 31.....	14-16	γ - 24	Deflections.	Oct. 12.....	17-18	γ .....	Adjusted.				
Feb. 1.....	14-16	+111	Adjusted.	Oct. 17.....	14-15	+ 30	Deflections.				
Feb. 28.....	15-16	+ 24	Deflections.	Oct. 29.....	16-17	- 70	Unknown.				
Mar. 9.....	15-16	- 145	Adjusted.	Oct. 31.....	8- 9	+ 60	Deflections.				
Mar. 14.....	15-16	+ 33	Deflections.	Oct. 31.....	14-15	- 10	Adjusted.				
Apr. 19.....	15-16	- 163	Adjusted.	Nov. 10.....	8- 9	+ 48	Unknown.				
Apr. 20.....	11-12	+ 6	Deflections.	Nov. 17.....	15-16	+ 60	Deflections.				
Apr. 20.....	17-18	+148	Adjusted.	Nov. 30.....	15-16	+ 32	Do.				
Apr. 30.....	14-15	- 70	Do.	Dec. 29.....	14-15	- 48	Adjusted.				
May 31.....	15-16	+ 33	Deflections.	1918.							
June 21.....	16-17	+ 40	Unknown.	Jan. 8.....	10-11	-129	Do.				
June 22.....	16-17	+110	Do.	Jan. 30.....	15-16	- 12	Deflections.				
June 29.....	15-16	+ 28	Deflections.	Feb. 11, 12.....	.....	.....	Storm.				
June 29.....	17-18	-228	Adjusted.	Mar. 30.....	14-15	- 64	Deflections.				
July 3.....	16-17	+ 8	Unknown.	Apr. 5, 6.....	.....	.....	Storm.				
July 5.....	16-17	+ 6	Do.	May 14, 15.....	.....	.....	Do.				
July 11.....	17-18	+ 4	Do.	May 30.....	14-15	- 16	Deflections.				
July 18.....	9-10	-106	Adjusted.	June 29.....	10-11	+ 16	Do.				
July 19.....	17-18	-287	Unknown.	June 30.....	16-17	+ 38	Adjusted.				
July 23.....	8- 9	+ 14	Do.	July 13.....	9-11	.....	Ch a n g e d pivots.				
Aug. 10.....	10-11	+311	Adjusted.	July 19.....	13-14	.....	Adjusted.				
Aug. 11.....	16-17	+ 41	Unknown.	July 31.....	13-14	.....	Do.				
Aug. 15.....	16-17	-630	* Do.	Aug. 1.....	16-17	+173	Do.				
Aug. 18.....	14-15	+582	Adjusted.	Aug. 29.....	.....	.....	Do.				
Aug. 22.....	16-17	+ 22	Unknown.	Sept. 28.....	9-10	+ 43	Deflections.				
Aug. 23.....	16-17	+ 51	Do.	Oct. 16.....	.....	.....	Storm.				
Aug. 31.....	9-10	+ 24	Deflections.	Nov. 11.....	.....	.....	Deflections.				
Aug. 31.....	21-22	.....	Adjusted.	Dec. 8.....	.....	.....	Storm.				
Sept. 7.....	10-11	-118	Do.	Dec. 25.....	15-16	+ 8	Do.				
Sept. 11.....	16-17	+ 14	Unknown.				Do.				
Sept. 17.....	13-14	+154	Deflections.				Adjusted.				
Oct. 9.....	8- 9	.....	Adjusted.								

*Z base-line values at 20° C.*

Date.	Observed.	Adopted.	Date.	Observed.	Adopted.	Date.	Observed.	Adopted.
1917.	$\gamma$	$\gamma$	1917.	$\gamma$	$\gamma$	1918.	$\gamma$	$\gamma$
Jan. 3*.	34629	34629	Aug. 18.	34019	34011	May 13.	34453	34459
Jan. 5*.	602	605	Aug. 23.	636	616	May 13.	461	459
Jan. 12*.	578	597	Aug. 25.	671	668	May 20.	435	440
Jan. 18*.	617	593	Aug. 30.	668	670	May 20.	440	440
Jan. 20*.	574	592	Sept. 4.	629	636	May 27.	437	438
Jan. 23*.	583	591	Sept. 8.	519	516	May 27.	438	438
Jan. 27*.	595	590	Sept. 12.	576	531	June 3.	386	408
Jan. 30*.	592	590	Sept. 15.	536	534	June 3.	394	407
Feb. 3*.	659	663	Sept. 20.	709	708	June 10.	312	390
Feb. 8*.	664	663	Sept. 22.	705	710	June 10.	382	390
Feb. 10*.	663	663	Sept. 25.	713	713	June 17.	379	374
Feb. 14*.	652	667	Oct. 1.	709	719	June 17.	367	373
Feb. 17*.	687	677	Oct. 4.	727	725	June 19.	367	371
Feb. 21*.	709	689	Oct. 15.	429	431	June 19.	376	371
Feb. 24*.	741	692	Oct. 19.	453	460	June 24*.	389	370
Feb. 28*.	688	694	Oct. 22.	451	460	June 26*.	404	370
Mar. 7*.	710	710	Oct. 26.	462	460	June 26*.	451	370
Mar. 10*.	561	566	Oct. 29.	456	460	July 4*.	441	425
Mar. 14*.	577	570	Nov. 2.	606	605	July 4*.	447	425
Mar. 17*.	579	604	Nov. 5.	597	604	July 10*.	436	427
Mar. 21*.	596	608	Nov. 13.	639	646	July 10*.	444	427
Mar. 24*.	607	611	Nov. 16.	649	646	July 26*.	381	373
Mar. 29*.	597	616	Nov. 20.	707	706	July 26*.	379	373
Mar. 31*.	620	618	Nov. 22.	709	706	July 30.	320	365
Mar. 31.	636	618	Nov. 26.	703	706	July 30.	320	365
Apr. 4.	643	623	Nov. 30.	701	706	Aug. 13.	593	593
Apr. 7.	643	626	Dec. 4.	721	724	Aug. 13.	599	593
Apr. 7*.	623	626	Dec. 7.	746	727	Aug. 21.	595	597
Apr. 11.	638	630	Dec. 11.	746	731	Aug. 21.	606	597
Apr. 11*.	614	630	Dec. 14.	731	735	Aug. 26.	606	599
Apr. 14*.	622	633	Dec. 17.	772	741	Aug. 28.	600	602
Apr. 18.	649	637	Dec. 24.	766	757	Aug. 28.	597	603
Apr. 21.	686	661	Dec. 24.	750	757	Aug. 30.	601	613
Apr. 21*.	662	661	1918.			Sept. 4.	614	616
Apr. 25*.	699	697	Jan. 7.	767	760	Sept. 6.	614	617
Apr. 26.	685	697	Jan. 7.	760	760	Sept. 12.	594	619
Apr. 28.	677	698	Jan. 14.	613	612	Sept. 14.	539	617
May 2.	617	609	Jan. 14.	613	612	Sept. 17.	565	614
May 5.	587	607	Jan. 14.	620	612	Sept. 17.	531	614
May 9*.	635	617	Jan. 21.	610	613	Sept. 25.	564	606
May 12.	606	623	Jan. 21.	618	613	Sept. 26.	559	605
May 16.	645	629	Jan. 28.	604	614	Oct. 1.	532	638
May 16*.	635	629	Jan. 28.	617	614	Oct. 1.	548	638
May 19*.	662	632	Feb. 4.	590	591	Oct. 7.	600	626
May 19.	619	632	Feb. 4.	592	591	Oct. 7.	595	626
May 23.	625	636	Feb. 11.	568	583	Oct. 16.	(412)	604
May 26.	621	632	Feb. 11.	575	583	Oct. 16.	(435)	604
May 31.	621	617	Feb. 18.	565	570	Oct. 22.	551	593
June 2.	646	645	Feb. 18.	571	570	Oct. 22.	540	598
June 6.	644	641	Feb. 25.	578	570	Oct. 29.	(347)	595
June 9.	640	641	Feb. 25.	578	570	Oct. 29.	524	595
June 14.	652	651	Mar. 4.	561	570	Nov. 5.	546	591
June 16.	649	652	Mar. 4.	571	570	Nov. 5.	552	591
June 20.	652	654	Mar. 11.	571	570	Nov. 12.	567	578
June 23.	816	804	Mar. 11.	575	570	Nov. 12.	572	577
June 26.	789	803	Mar. 18.	567	570	Nov. 19.	577	568
June 30.	592	602	Mar. 18.	579	570	Nov. 19.	576	568
July 5.	562	614	Mar. 25.	571	570	Nov. 26.	552	554
July 11.	642	615	Mar. 25.	578	570	Nov. 26.	557	554
July 14.	623	614	Apr. 1.	500	498	Dec. 3.	535	540
July 20.	274	273	Apr. 1.	500	498	Dec. 3.	544	540
July 21.	279	272	Apr. 8.	495	484	Dec. 10.	523	520
July 27.	286	285	Apr. 8.	471	484	Dec. 10.	528	520
July 28.	291	285	Apr. 15.	503	479	Dec. 17.	516	516
Aug. 2.	252	287	Apr. 15.	511	479	Dec. 17.	518	516
Aug. 4.	266	288	Apr. 22.	476	474	Dec. 24.	499	514
Aug. 9.	298	289	Apr. 22.	469	474	Dec. 24.	507	514
Aug. 11.	612	600	May 6.	455	464	Dec. 30.	516	521
Aug. 15.	669	641	May 6.	449	464	Dec. 30.	522	521

\* Dip circle observations.

## DIURNAL VARIATION.

The following tables show the diurnal variation of  $D$ ,  $H$ ,  $Z$ ,  $X$ ,  $Y$ ,  $I$ , and  $F$  for each month, based on the hourly means for the 10 least disturbed days. The tabular quantities refer to the middle of the hour, sixtieth meridian mean time, since they are based on the average ordinate for the hour. The corresponding values for local mean time may be found by interpolation, bearing in mind that  $0^{\text{h}} - 1^{\text{h}}$  of the table corresponds to  $0^{\text{h}} 08^{\text{h}}$  local mean time. A plus sign indicates an hourly value greater than the mean for the day.  $D$  and  $Y$ , being considered positive for east declination, are negative at Porto Rico. Consequently, in the tables showing the diurnal variation of  $D$  and  $Y$ , a plus sign indicates an hourly value numerically less but algebraically greater than the mean for the day. The variations in  $X$ ,  $Y$ ,  $I$ , and  $F$  were computed from the variations in  $D$ ,  $H$ , and  $Z$  by means of the formulas:

$$\begin{aligned}\Delta X &= 0.499 \Delta D + 0.998 \Delta H \\ \Delta Y &= 8.136 \Delta D - 0.061 \Delta H \\ \Delta I &= 0.048 \Delta Z - 0.060 \Delta H \\ \Delta F &= 0.778 \Delta Z + 0.628 \Delta H\end{aligned}$$

Mean results are given for groups of four months, as indicated by the Roman numerals at the head of columns: I—January, February, November, December; II—March, April, September, October; III—May, June, July, August.

No correction for noncyclic change has been applied, but an effort has been made when selecting the 10 days to keep the effect small by avoiding days of marked noncyclic change, such as usually occur immediately after a severe magnetic disturbance. Until the character of the noncyclic change has been more definitely determined and a uniform method of correcting for it has been adopted, it is believed that the uncorrected values, rather than more or less arbitrarily corrected ones, can be used to better advantage by any one engaged on special investigations.

At the request of the executive bureau of the International Commission for Terrestrial Magnetism there are given also tables showing the diurnal variation of  $D$ ,  $H$ ,  $X$ ,  $Y$ , and  $Z$  for the five international quiet days of each month, arranged according to Greenwich mean time, the tabular quantities referring to the middle of the hour for the reason stated above. The results have been corrected for noncyclic change where necessary, as requested by the international commission, on the assumption that the change is distributed uniformly through the 24 hours.

Twenty-six hourly means were computed, as shown on the bottom line of each monthly tabulation, one hour preceding the selected Greenwich day and one hour following it, the computations being carried one decimal place farther than shown. The mean difference between the overlapping hours was taken as the amount of the noncyclic change. To simplify the application of the correction, the nearest multiple of 24 was used instead of the actual mean difference in 1917. These amounts are shown in the following table. A plus sign indicates that the values at the end of the day were greater than those at the beginning.

*Amount of correction for noncyclic change.*

[International quiet days.]

Month.	1917			1918		
	D	H	Z	D	H	Z
January.....	-0.24	$\gamma$ 4.8	-2.4	-0.08	$\gamma$ 3.1	+0.1
February.....	0.00	+2.4	-2.4	+0.08	+6.8	+0.4
March.....	0.00	+4.8	0.0	+0.17	+6.5	+0.2
April.....	0.00	+9.6	-4.8	-0.19	+9.7	-6.0
May.....	0.00	+4.8	0.0	+0.07	+4.7	0.0
June.....	0.00	+4.8	0.0	-0.28	-0.3	+2.3
July.....	+0.24	+4.8	0.0	-0.12	+6.0	-0.4
August.....	0.00	+7.2	0.0	-0.23	+5.4	-0.9
September.....	0.00	+4.8	0.0	-0.09	+4.6	-4.5
October.....	0.00	+4.8	0.0	-0.05	+8.6	-1.9
November.....	0.00	+7.2	0.0	+0.03	+8.1	-0.7
December.....	0.00	+4.8	0.0	+0.11	+11.0	+1.1

*Diurnal variation of D.*

1917.

Hour.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Group means.			Year.	
	I	I	II	II	III	III	III	III	II	II	I	I	I	II	III		
0- 1	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	
1- 2	-0.2	+0.1	+0.1	-0.1	+0.1	-0.6	-0.4	-0.3	-0.2	-0.3	-0.1	0.0	0.0	-0.1	-0.3	-0.2	
2- 3	-0.2	-0.1	+0.1	0.0	+0.3	-0.4	-0.5	-0.2	-0.1	-0.4	-0.1	-0.2	-0.2	-0.1	-0.2	-0.2	
3- 4	-0.4	-0.3	+0.2	+0.1	+0.2	-0.3	-0.4	-0.1	0.0	-0.3	-0.2	-0.3	-0.3	0.0	-0.2	-0.1	
4- 5	-0.5	-0.4	+0.1	+0.1	+0.5	-0.3	-0.2	+0.2	+0.2	-0.2	-0.2	-0.4	-0.4	0.0	+0.1	-0.1	
5- 6	-0.1	0.0	+0.4	+0.6	+1.1	+0.2	+0.3	+0.7	+0.7	+0.2	-0.1	-0.2	-0.1	+0.5	+0.6	+0.3	
6- 7	+0.3	+0.4	+0.8	+1.3	+3.1	+2.0	+1.8	+3.6	+2.6	+1.3	+0.1	-0.3	+0.1	+1.5	+2.6	+1.4	
7- 8	+1.0	+0.5	+1.6	+2.3	+3.7	+3.7	+3.1	+5.8	+4.5	+2.5	+0.7	-0.3	+0.5	+2.7	+4.1	+2.4	
8- 9	+3.2	+2.0	+2.8	+2.8	+2.7	+4.5	+3.8	+5.8	+4.9	+3.7	+2.1	+1.5	+2.2	+3.6	+4.2	+3.3	
9-10	+5.1	+3.6	+3.2	+2.7	+1.1	+3.9	+3.0	+4.3	+3.8	+3.7	+3.0	+3.2	+3.7	+3.3	+3.1	+3.4	
10-11	+4.1	+4.0	+4.0	+2.9	+2.4	-0.3	+2.7	+2.1	+2.1	+2.4	+2.9	+3.7	+3.7	+2.4	+1.7	+2.6	
11-12	+1.2	+2.2	+1.7	+1.4	-1.4	+1.4	+0.8	-0.7	+0.3	+0.7	+1.8	+3.1	+2.1	+1.0	0.0	+1.0	+1.0
12-13	-1.1	0.0	0.0	-0.2	-2.1	-0.1	-0.4	-2.5	-1.2	-0.6	+0.4	+1.6	+0.2	-0.5	-1.3	-0.5	
13-14	-2.6	-1.6	-1.7	-1.9	-2.7	-1.6	-1.5	-3.4	-2.5	-1.5	-0.8	-0.9	-1.5	-1.9	-2.3	-1.9	
14-15	-3.2	-2.5	-2.6	-3.0	-2.9	-2.8	-2.6	-3.9	-3.1	-2.0	-1.7	-2.3	-2.4	-2.7	-3.0	-2.7	
15-16	-3.0	-2.9	-2.5	-3.0	-2.4	-3.4	-3.0	-3.8	-2.9	-2.3	-2.1	-2.9	-2.7	-2.7	-3.2	-2.8	
16-17	-1.7	-2.4	-1.9	-2.1	-1.2	-2.7	-2.2	-2.6	-2.3	-1.9	-1.9	-2.2	-2.0	-2.0	-2.2	-2.1	
17-18	-0.9	-1.6	-1.5	-1.0	-0.5	-1.7	-1.3	-1.4	-1.8	-1.7	-1.6	-1.3	-1.4	-1.5	-1.2	-1.4	
18-19	-0.7	-1.0	-1.2	-0.7	-0.3	-1.1	-0.7	-1.0	-1.6	-1.3	-1.1	-0.9	-0.9	-1.2	-0.8	-1.0	
19-20	-0.5	-0.7	-1.2	-0.8	-0.4	-1.0	-0.7	-1.1	-1.0	-0.9	-0.6	-0.7	-1.1	-0.8	-0.9	-0.9	
20-21	+0.1	-0.1	-0.8	-0.6	-0.3	-0.9	-0.6	-0.9	-1.2	-0.4	-0.3	-0.1	-0.1	-0.8	-0.7	-0.5	
21-22	+0.2	+0.2	-0.4	-0.4	-0.1	-0.8	-0.5	-0.9	-0.9	-0.3	0.0	+0.1	+0.1	-0.5	-0.6	-0.3	
22-23	+0.1	+0.2	-0.3	-0.4	0.0	-0.6	-0.4	-0.7	-0.6	-0.3	0.0	0.0	+0.1	-0.4	-0.4	-0.2	
23-24	-0.1	0.0	-0.2	-0.4	0.0	-0.6	-0.4	-0.6	-0.4	-0.4	0.0	0.0	0.0	-0.3	-0.4	-0.3	

1918.

0- 1	+0.1	0.0	-0.2	-0.2	-0.4	-0.5	-0.1	-0.4	-0.2	-0.1	-0.2	-0.3	-0.1	-0.2	-0.4	-0.2
1- 2	-0.1	-0.2	-0.2	-0.2	-0.3	0.0	-0.3	-0.4	-0.4	-0.1	-0.4	-0.4	-0.4	-0.1	-0.1	-0.2
2- 3	-0.3	-0.3	-0.2	-0.1	-0.1	-0.1	0.0	-0.1	0.0	-0.4	-0.4	-0.4	-0.4	0.0	+0.1	-0.1
3- 4	-0.4	-0.5	-0.2	-0.2	-0.1	0.0	-0.1	+0.1	+0.1	+0.2	-0.2	-0.3	-0.2	+0.3	+0.5	+0.2
4- 5	-0.2	-0.1	+0.1	+0.2	+0.5	+0.2	+0.7	+0.7	+0.6	+0.2	-0.1	-0.3	-0.1	+0.6	+1.0	+0.5
5- 6	-0.2	-0.1	+0.4	+0.4	+1.0	+0.6	+1.1	+1.1	+1.1	+0.4	+0.1	-0.3	-0.1	+0.6	+1.0	+0.5
6- 7	-0.1	0.0	+0.7	+1.3	+2.6	+1.8	+2.5	+3.0	+2.0	+0.8	+0.3	-0.1	0.0	+1.2	+2.5	+1.2
7- 8	0.0	-0.1	+1.5	+2.4	+4.5	+3.8	+5.3	+3.4	+1.8	+0.8	+0.3	+0.2	+2.3	+4.2	+2.2	+2.2
8- 9	+1.7	+1.0	+2.8	+3.0	+4.4	+3.3	+3.9	+4.9	+3.6	+2.8	+2.2	+1.6	+1.6	+3.0	+4.1	+2.9
9-10	+3.6	+2.6	+3.4	+3.1	+2.9	+2.5	+2.8	+3.0	+2.9	+2.9	+2.8	+2.7	+2.9	+3.1	+2.8	+2.9
10-11	+4.3	+3.3	+3.3	+3.2	+1.3	+1.3	+1.5	+1.0	+1.7	+2.1	+2.1	+2.2	+2.9	+3.2	+2.6	+1.3
11-12	+3.9	+2.4	+2.1	+2.2	+0.1	+0.6	+0.1	-0.8	+0.2	+1.0	+0.9	+1.5	+2.2	+1.4	0.0	+1.2
12-13	+1.5	+0.8	+0.6	+0.3	-1.2	-0.3	-1.3	-2.2	-1.4	+0.1	-0.2	-0.1	+0.5	-0.1	-1.2	-0.3
13-14	-1.8	-0.6	-1.1	-1.8	-2.4	-1.0	-2.4	-3.0	-2.4	-0.6	-1.0	-1.1	-1.1	-1.5	-2.2	-1.6
14-15	-3.6	-1.4	-2.2	-3.0	-3.1	-1.4	-2.9	-3.2	-2.6	-1.6	-1.6	-1.5	-2.0	-2.4	-2.6	-2.3
15-16	-3.9	-1.8	-2.6	-3.1	-2.9	-1.6	-2.8	-2.9	-2.4	-2.1	-1.7	-1.5	-2.2	-2.6	-2.6	-2.4
16-17	-2.8	-1.6	-2.2	-2.3	-1.9	-1.2	-2.2	-1.7	-1.8	-2.1	-1.4	-1.1	-1.7	-2.1	-1.8	-1.9
17-18	-1.4	-1.4	-1.6	-1.5	-1.3	-1.0	-1.4	-0.8	-1.2	-1.9	-1.3	-0.9	-1.2	-1.6	-1.1	-1.3
18-19	-0.6	-1.0	-1.2	-1.1	-0.9	-1.0	-1.0	-0.5	-1.0	-1.5	-1.0	-0.4	-0.8	-1.2	-0.8	-0.9
19-20	-0.4	-0.8	-1.2	-1.0	-0.8	-1.2	-1.0	-0.6	-0.8	-1.0	-0.5	0.0	-0.4	-1.0	-0.9	-0.8
20-21	+0.1	-0.2	-0.7	-0.9	-0.8	-1.2	-0.8	-0.7	-0.6	-0.6	0.0	0.0	0.0	-0.7	-0.9	-0.5
21-22	+0.2	+0.1	-0.4	-0.6	-0.7	-1.2	-0.7	-0.6	-0.4	-0.3	+0.2	0.0	+0.1	-0.4	-0.8	-0.4
22-23	+0.2	0.0	-0.4	-0.2	-0.4	-0.9	-0.2	-0.6	-0.6	-0.2	-0.1	+0.2	0.0	+0.1	-0.2	-0.5
23-24	+0.1	0.0	-0.4	0.0	-0.4	-0.7	-0.1	-0.6	-0.2	-0.2	+0.1	-0.1	0.0	-0.2	-0.4	-0.2

## DIURNAL VARIATION.

*Diurnal variation of H.*

1917.

Hour.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Group means.			Year.
	I	I	II	II	III	III	III	II	II	I	I	I	II	III	II	
0- 1	- 3	- 2	- 11	- 8	- 6	- 5	- 6	- 3	- 5	- 4	- 5	- 5	- 4	- 7	- 5	- 5
1- 2	- 2	- 1	- 10	- 7	- 6	- 5	- 4	- 2	- 3	- 1	- 5	- 4	- 3	- 5	- 4	- 4
2- 3	- 1	+ 1	- 8	- 7	- 6	- 5	- 4	- 2	- 3	0	- 4	- 3	- 2	- 4	- 4	- 3
3- 4	+ 1	+ 3	- 7	- 5	- 5	- 4	- 4	- 2	- 1	+ 2	- 2	- 1	0	- 3	- 4	- 2
4- 5	+ 4	+ 4	- 6	- 4	- 3	- 4	- 4	- 3	0	+ 4	- 1	0	+ 2	- 1	- 4	- 1
5- 6	+ 5	+ 5	- 4	- 4	- 3	- 4	- 3	+ 2	+ 5	+ 1	+ 3	+ 4	0	- 3	0	0
6- 7	+ 4	+ 7	- 2	- 3	- 4	- 3	- 1	- 5	0	+ 5	+ 4	+ 6	+ 5	0	- 3	+ 1
7- 8	+ 8	+ 10	+ 3	- 2	- 3	- 5	+ 2	- 9	- 5	+ 5	+ 7	+ 13	+ 9	0	- 4	+ 2
8- 9	+ 11	+ 12	+ 8	+ 3	+ 5	- 4	+ 4	- 7	- 6	+ 2	+ 9	+ 14	+ 12	+ 2	0	+ 4
9-10	+ 5	+ 9	+ 10	+ 9	+ 14	+ 1	+ 8	- 2	- 4	+ 1	+ 8	+ 8	+ 8	+ 5	+ 5	+ 6
10-11	0	+ 3	+ 12	+ 14	+ 19	+ 8	+ 13	+ 3	0	+ 1	+ 6	+ 4	+ 3	+ 7	+ 11	+ 7
11-12	- 2	- 1	+ 16	+ 14	+ 21	+ 13	+ 13	+ 6	+ 6	+ 1	+ 6	+ 2	+ 1	+ 9	+ 13	+ 8
12-13	- 6	- 6	+ 16	+ 11	+ 16	+ 11	+ 10	+ 9	+ 7	+ 3	+ 3	0	- 2	+ 9	+ 12	+ 6
13-14	- 8	- 10	+ 14	+ 10	+ 9	+ 8	+ 6	+ 9	+ 6	+ 2	- 1	- 3	- 5	+ 8	+ 8	+ 3
14-15	- 7	- 9	+ 7	+ 9	+ 3	+ 6	+ 4	+ 7	+ 3	0	- 3	- 3	- 6	+ 5	+ 5	+ 1
15-16	- 5	- 5	+ 5	+ 7	- 4	+ 5	+ 2	+ 2	- 1	- 3	- 5	- 3	- 4	+ 2	+ 1	0
16-17	- 4	- 5	+ 1	0	- 10	0	- 2	- 4	- 2	- 6	- 7	- 5	- 5	- 2	- 4	- 4
17-18	- 1	- 4	- 4	- 7	- 11	- 3	- 5	- 4	- 1	- 3	- 5	- 4	- 3	- 4	- 6	- 4
18-19	+ 1	- 3	- 4	- 6	- 9	- 3	- 6	- 1	+ 1	- 2	- 1	- 4	- 2	- 3	- 5	- 3
19-20	+ 1	- 1	- 3	- 4	- 6	- 2	- 6	+ 2	+ 2	- 1	0	- 3	- 1	- 2	- 3	- 2
20-21	0	- 2	- 8	- 4	- 3	- 2	- 5	+ 1	+ 1	- 3	0	- 3	- 1	- 3	- 2	- 2
21-22	0	- 2	- 9	- 5	- 3	- 1	- 4	+ 1	+ 2	- 3	- 2	- 3	- 2	- 4	- 2	- 2
22-23	- 1	- 2	- 9	- 4	- 3	0	- 3	+ 2	0	- 3	- 2	- 4	- 2	- 4	- 1	- 2
23-24	- 1	- 1	- 8	- 4	- 3	0	- 3	+ 3	- 2	- 2	- 2	- 3	- 2	- 4	- 1	- 2

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0- 1	- 5	- 6	- 8	- 11	- 2	- 7	- 6	- 6	- 8	- 8	- 5	- 3	- 5	- 9	- 5	- 6
1- 2	- 3	- 5	- 8	- 8	- 4	- 7	- 7	- 7	- 6	- 7	- 5	- 3	- 4	- 7	- 6	- 6
2- 3	- 1	- 4	- 7	- 8	- 4	- 6	- 6	- 8	- 1	- 6	- 4	- 2	- 3	- 5	- 6	- 5
3- 4	0	- 2	- 4	- 6	- 4	- 6	- 7	- 8	0	- 4	- 3	- 1	- 1	- 3	- 6	- 4
4- 5	+ 2	0	- 2	- 4	- 4	- 6	- 7	- 9	+ 1	- 2	- 1	+ 1	0	- 2	- 6	- 3
5- 6	+ 4	+ 2	0	- 4	- 4	- 4	- 8	- 7	+ 1	- 1	+ 2	+ 3	+ 3	- 1	- 6	- 1
6- 7	+ 5	+ 5	+ 2	- 2	- 4	- 2	- 5	- 6	+ 2	0	+ 4	+ 5	+ 5	+ 1	- 4	0
7- 8	+ 11	+ 12	+ 7	- 2	- 5	+ 2	0	- 5	+ 4	+ 3	+ 9	+ 10	+ 11	+ 3	- 2	+ 4
8- 9	+ 14	+ 16	+ 10	+ 1	- 4	+ 8	+ 9	+ 2	+ 5	+ 5	+ 12	+ 12	+ 14	+ 5	+ 4	+ 8
9-10	+ 7	+ 14	+ 10	+ 7	+ 3	+ 12	+ 15	+ 13	+ 6	+ 7	+ 11	+ 9	+ 10	+ 7	+ 11	+ 10
10-11	- 2	+ 9	+ 9	+ 13	+ 9	+ 19	+ 19	+ 20	+ 8	+ 8	+ 9	+ 10	+ 6	+ 9	+ 17	+ 11
11-12	- 6	+ 2	+ 8	+ 16	+ 13	+ 18	+ 19	+ 23	+ 7	+ 8	+ 7	+ 7	+ 2	+ 10	+ 18	+ 10
12-13	- 10	- 2	+ 5	+ 14	+ 12	+ 13	+ 14	+ 21	+ 2	+ 8	+ 3	+ 2	- 2	+ 7	+ 15	+ 7
13-14	- 12	- 5	+ 2	+ 14	+ 8	+ 8	+ 9	+ 13	+ 3	+ 6	0	- 4	- 5	+ 6	+ 9	+ 4
14-15	- 10	- 6	0	+ 10	+ 6	+ 2	+ 5	+ 6	+ 2	+ 2	- 3	- 6	- 6	+ 4	+ 5	+ 1
15-16	- 5	- 6	- 3	+ 8	+ 1	- 3	- 1	+ 1	0	- 3	- 3	- 10	- 6	0	- 1	- 2
16-17	- 2	- 7	- 5	+ 2	- 4	- 6	- 7	- 5	- 2	- 5	- 4	- 12	- 6	- 2	- 6	- 5
17-18	+ 1	- 6	- 5	- 2	- 5	- 7	- 7	- 9	- 3	- 3	- 5	- 10	- 5	- 3	- 7	- 5
18-19	+ 2	- 6	- 5	- 5	- 3	- 6	- 6	- 9	- 3	- 2	- 6	- 6	- 4	- 4	- 6	- 5
19-20	+ 2	- 4	- 2	- 6	- 1	- 4	- 4	- 7	- 3	- 4	- 5	- 3	- 2	- 4	- 4	- 4
20-21	+ 2	- 2	- 1	- 7	0	- 4	- 4	- 6	- 2	- 1	- 4	0	- 1	- 3	- 4	- 2
21-22	+ 2	0	0	- 7	- 1	- 4	- 5	- 5	- 2	0	- 2	+ 1	0	- 2	- 4	- 2
22-23	+ 1	- 1	- 1	- 6	- 1	- 3	- 5	- 3	- 3	- 1	- 2	+ 1	0	- 3	- 3	- 2
23-24	+ 1	- 2	0	- 8	- 1	- 3	- 6	- 1	- 7	- 2	- 3	0	- 1	- 4	- 3	- 3

*Diurnal variation of Z.*

1917.

Hour.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Group means.			Year.
	I	I	II	II	III	III	III	III	II	II	I	I	I	II	III	
0- 1	γ + 7	γ + 3	γ + 5	γ + 2	- 1	- 1	γ - 1	γ + 3	γ + 5	γ + 6	γ + 4	γ + 6	γ + 5	γ + 5	γ 0	+ 3
1- 2	+ 6	+ 4	+ 6	+ 2	- 1	0	- 1	+ 3	+ 7	+ 6	+ 5	+ 6	+ 5	+ 5	0	+ 4
2- 3	+ 6	+ 5	+ 6	+ 2	0	0	- 1	+ 4	+ 7	+ 6	+ 5	+ 8	+ 6	+ 6	+ 1	+ 4
3- 4	+ 7	+ 6	+ 7	+ 2	+ 1	+ 2	+ 1	+ 5	+ 9	+ 6	+ 5	+ 8	+ 6	+ 6	+ 2	+ 5
4- 5	+ 6	+ 6	+ 6	+ 2	+ 2	+ 2	+ 1	+ 5	+ 9	+ 6	+ 5	+ 7	+ 6	+ 6	+ 3	+ 5
5- 6	+ 5	+ 5	+ 5	+ 2	+ 2	+ 3	+ 3	+ 6	+ 8	+ 6	+ 5	+ 6	+ 5	+ 5	+ 3	+ 5
6- 7	+ 4	+ 6	+ 4	+ 2	+ 1	+ 2	+ 3	+ 3	+ 5	+ 4	+ 4	+ 6	+ 5	+ 4	+ 2	+ 4
7- 8	+ 5	+ 6	+ 3	+ 1	- 2	- 2	- 3	- 3	- 3	- 1	- 2	- 2	0	- 4	- 1	- 3
8- 9	- 1	0	- 1	- 2	- 3	- 3	- 2	- 8	- 8	- 5	- 2	- 2	- 6	- 6	- 4	- 3
9-10	-10	- 5	- 3	- 1	- 3	- 3	- 2	- 8	- 10	- 8	- 6	- 5	- 6	- 6	- 4	- 5
10-11	-14	-10	- 5	- 3	- 1	- 4	- 3	- 9	- 11	- 9	- 9	- 11	- 11	- 7	- 4	- 7
11-12	-12	-12	- 4	- 3	- 2	- 4	- 4	- 7	- 10	- 8	- 8	- 12	- 11	- 6	- 4	- 7
12-13	-12	-11	- 7	- 3	- 3	- 5	- 4	- 5	- 10	- 7	- 8	- 13	- 11	- 7	- 4	- 7
13-14	- 8	-11	- 6	- 1	- 2	- 3	- 3	- 4	- 6	- 7	- 7	- 10	- 9	- 5	- 3	- 6
14-15	- 5	- 8	- 5	+ 1	0	+ 1	- 2	- 1	- 3	- 5	- 5	- 6	- 6	- 3	- 1	- 3
15-16	- 2	- 4	- 5	+ 1	+ 2	+ 5	+ 1	+ 1	- 2	- 4	- 2	- 3	- 3	- 3	+ 2	- 1
16-17	- 2	- 3	- 5	- 2	0	+ 4	+ 1	+ 1	0	- 6	0	0	- 1	- 3	+ 1	- 1
17-18	0	- 1	- 5	- 3	0	+ 2	+ 1	0	0	- 3	+ 1	- 1	0	- 3	+ 1	- 1
18-19	+ 2	+ 3	- 3	- 2	+ 2	+ 1	+ 1	+ 2	+ 2	0	+ 2	0	+ 2	- 1	+ 2	+ 1
19-20	+ 3	+ 5	- 1	0	+ 4	+ 2	+ 2	+ 3	+ 3	+ 3	+ 3	+ 1	+ 3	+ 1	+ 2	+ 2
20-21	+ 2	+ 4	0	0	+ 3	0	+ 3	+ 3	+ 3	+ 4	+ 1	+ 1	+ 2	+ 2	+ 2	+ 2
21-22	+ 2	+ 4	+ 1	0	+ 2	0	+ 3	+ 2	+ 2	+ 5	+ 1	+ 1	+ 2	+ 2	+ 2	+ 2
22-23	+ 4	+ 5	+ 3	+ 1	+ 1	- 1	+ 2	+ 2	+ 3	+ 5	+ 2	+ 2	+ 3	+ 3	+ 1	+ 2
23-24	+ 6	+ 5	+ 5	+ 2	0	- 1	+ 1	+ 2	+ 3	+ 6	+ 2	+ 2	+ 4	+ 4	0	+ 3

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0- 1	+ 7	+ 4	+ 7	+ 4	+ 2	+ 1	+ 2	+ 3	+ 4	+ 8	+ 4	+ 4	+ 5	+ 5	+ 6	+ 2	+ 4
1- 2	+ 8	+ 6	+ 6	+ 4	+ 0	+ 2	+ 2	+ 4	+ 5	+ 8	+ 4	+ 5	+ 7	+ 6	+ 6	+ 2	+ 5
2- 3	+ 7	+ 6	+ 6	+ 4	+ 2	+ 1	+ 3	+ 4	+ 4	+ 8	+ 5	+ 8	+ 7	+ 6	+ 5	+ 2	+ 5
3- 4	+ 7	+ 7	+ 6	+ 4	+ 4	+ 1	+ 1	+ 5	+ 4	+ 7	+ 5	+ 7	+ 6	+ 7	+ 3	+ 5	
4- 5	+ 6	+ 6	+ 6	+ 5	+ 3	+ 3	+ 0	+ 5	+ 2	+ 6	+ 5	+ 7	+ 6	+ 4	+ 3	+ 4	
5- 6	+ 6	+ 5	+ 5	+ 3	+ 4	- 1	+ 3	+ 6	+ 2	+ 5	+ 5	+ 8	+ 6	+ 4	+ 3	+ 4	
6- 7	+ 6	+ 4	+ 5	+ 2	+ 2	+ 3	+ 2	+ 4	+ 1	+ 3	+ 5	+ 6	+ 5	+ 3	+ 1	+ 3	
7- 8	+ 6	+ 6	+ 3	0	- 3	- 6	- 3	- 5	- 3	- 2	- 2	- 2	+ 5	+ 3	- 4	0	
8- 9	+ 2	+ 1	0	- 1	- 8	- 6	- 9	- 9	- 5	- 6	- 2	- 1	0	- 3	- 8	- 4	
9-10	- 5	- 3	- 4	- 1	- 8	- 4	- 6	- 8	- 6	- 7	- 6	- 7	- 5	- 5	- 7	- 6	
10-11	-11	- 7	- 7	- 4	- 8	- 1	- 6	- 8	- 6	- 8	- 9	- 11	- 9	- 6	- 6	- 7	
11-12	-14	-11	- 9	- 6	- 8	0	- 3	- 8	- 7	- 7	- 8	-14	-12	- 7	- 5	- 8	
12-13	-16	-10	-12	- 6	- 6	0	+ 1	- 6	- 5	- 6	- 8	-13	-12	- 7	- 3	- 7	
13-14	-13	- 9	-12	- 4	- 4	0	0	- 4	- 2	- 6	- 6	-11	-10	- 6	- 2	- 6	
14-15	- 7	- 8	- 9	- 3	0	+ 2	+ 2	- 1	- 2	- 5	- 4	- 8	- 7	- 5	+ 1	- 4	
15-16	- 4	- 5	- 7	- 2	+ 3	+ 4	+ 4	+ 1	- 2	- 5	- 3	- 5	- 4	- 4	+ 3	- 2	
16-17	- 1	- 3	- 4	- 2	+ 3	+ 4	+ 3	+ 1	- 1	- 3	- 2	- 2	- 2	- 3	+ 3	- 1	
17-18	0	- 1	- 2	- 3	+ 3	+ 2	+ 2	+ 1	- 2	- 1	0	+ 1	0	- 2	+ 2	0	
18-19	0	0	- 1	- 2	+ 5	+ 1	+ 1	+ 1	0	- 1	0	+ 4	+ 1	- 1	+ 2	+ 1	
19-20	+ 2	+ 1	+ 3	+ 1	+ 4	+ 2	+ 4	+ 1	+ 1	+ 1	+ 1	+ 4	+ 2	+ 1	+ 2	+ 2	
20-21	+ 2	+ 3	+ 4	+ 2	+ 4	+ 1	+ 1	+ 3	+ 3	+ 2	+ 2	+ 4	+ 3	+ 3	+ 2	+ 3	
21-22	+ 3	+ 3	+ 5	+ 5	+ 3	+ 2	+ 1	+ 1	+ 3	+ 4	+ 3	+ 3	+ 3	+ 4	+ 2	+ 3	
22-23	+ 4	+ 3	+ 5	+ 4	+ 1	+ 1	+ 1	+ 1	+ 3	+ 4	+ 2	+ 4	+ 3	+ 3	+ 1	+ 3	
23-24	+ 4	+ 3	+ 6	+ 3	+ 1	+ 2	- 1	+ 2	+ 4	+ 5	+ 3	+ 3	+ 3	+ 4	+ 1	+ 3	

## DIURNAL VARIATION.

17

*Diurnal variation of X.*

1917.

Hour.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Group means.			Year.
	I	I	II	II	III	III	III	II	II	II	I	I	I	II	III	
0- 1	-3	-2	-11	-7	-6	-5	-6	-3	-5	-4	-5	-5	-4	-7	-5	-5
1- 2	-2	-1	-10	-7	-6	-5	-4	-2	-3	-1	-5	-5	-4	-4	-4	-4
2- 3	-1	+1	-8	-7	-6	-5	-4	-2	-3	0	-4	-3	-2	-4	-4	-4
3- 4	+1	+3	-7	-5	-5	-4	-4	-2	-1	+2	-2	-1	0	-3	-4	-2
4- 5	+4	+4	-6	-4	-2	-4	-4	-3	0	+4	-1	0	+2	-1	-3	-1
5- 6	+5	+5	-4	-4	-2	-4	-3	-2	+3	+5	+1	+3	+4	0	-3	0
6- 7	+4	+7	-2	-2	-2	0	-3	+1	+6	+4	+6	+5	+1	-2	+1	+1
7- 8	+8	+10	+4	-1	-1	-3	+4	-6	-3	+6	+7	+13	+1	-2	+3	+3
8- 9	+13	+13	+9	+4	+6	-2	+6	-4	-4	+4	+10	+15	+13	+3	+2	+6
9-10	+8	+11	+12	+10	+15	+3	+9	0	-2	+3	+9	+10	+10	+6	+7	+7
10-11	+2	+5	+13	+15	+19	+9	+14	+4	+1	+2	+7	+6	+5	+8	+12	+8
11-12	-1	0	+17	+15	+20	+14	+13	+6	+6	+1	+7	+4	+2	+10	+13	+8
12-13	-7	-6	+16	+11	+15	+11	+10	+8	+6	+3	+3	+1	-2	+9	+11	+6
13-14	-9	-11	+13	+9	+8	+7	+5	+7	+5	+1	-1	-3	-6	+7	+7	+3
14-15	-9	-10	+6	+7	+2	+5	+3	+5	+1	-1	-4	-4	-7	+3	+4	0
15-16	-6	-6	+4	+5	-5	+3	0	0	-2	-4	-6	-4	-5	+1	-1	-2
16-17	-5	-6	0	-1	-11	-1	-3	-5	-3	-7	-8	-6	-6	-3	-5	-5
17-18	-1	-5	-5	-7	-11	-4	-6	-5	-2	-4	-6	-5	-4	-5	-7	-5
18-19	+1	-3	-5	-6	-9	-4	-6	-1	0	-3	-2	-4	-2	-4	-5	-4
19-20	+1	-1	-4	-4	-6	-2	-6	+1	+1	-1	-3	-3	-1	-2	-3	-2
20-21	0	-2	-8	-4	-3	-2	-5	+1	0	-3	0	-3	-1	-4	-2	-2
21-22	0	-2	-9	-5	-3	-1	-4	+1	+2	-3	-2	-3	-2	-4	-2	-2
22-23	-1	-2	-9	-4	-3	0	-3	+2	0	-2	-2	-3	-2	-4	-1	-2
23-24	-1	-1	-8	-4	-3	0	-3	+3	-2	-2	-3	-2	-2	-4	-1	-2

1918.

0- 1	-5	-6	-8	-11	-2	-7	-6	-6	-8	-8	-5	-3	-5	-9	-5	-6
1- 2	-3	-5	-8	-8	-4	-7	-7	-7	-6	-7	-5	-3	-4	-7	-6	-6
2- 3	-1	-4	-7	-8	-4	-6	-6	-8	-1	-6	-4	-2	-3	-6	-6	-5
3- 4	0	-2	-4	-6	-4	-6	-7	-8	0	-4	-3	-1	-2	-3	-6	-4
4- 5	+2	0	-2	-4	-4	-6	-7	-9	+1	-2	-1	0	+1	-2	-6	-3
5- 6	+4	+2	0	-4	-4	-4	-8	-6	+2	-1	+2	+3	+3	-1	-6	-1
6- 7	+5	+5	+2	-1	-3	-1	-4	-4	+3	0	+4	+5	+5	+1	-3	+1
7- 8	+11	+12	+8	-1	-3	+4	+2	-2	+6	+4	+9	+10	+11	+4	0	+5
8- 9	+15	+16	+11	+2	-2	+10	+11	+4	+7	+6	+13	+13	+14	+7	+6	+9
9-10	+9	+15	+12	+8	+4	+13	+16	+14	+7	+8	+12	+10	+12	+9	+12	+11
10-11	0	+11	+11	+15	+10	+20	+20	+20	+9	+9	+10	+11	+8	+11	+17	+12
11-12	-4	+3	+9	+17	+13	+18	+19	+23	+7	+8	+7	+8	+4	+10	+18	+11
12-13	-9	-2	+5	+14	+11	+13	+13	+20	+1	+8	+3	+2	-1	+7	+14	+7
13-14	-13	-5	+2	+13	+7	+8	+8	+12	+2	+6	-4	-6	+6	+9	+3	-3
14-15	-12	-7	-1	+8	+4	+1	+4	+4	+1	+1	-4	-7	-8	+2	+3	-1
15-16	-12	-7	-4	+6	0	-4	-2	0	-1	-4	-4	-11	-7	-1	-2	-3
16-17	-3	-8	-6	+1	-5	-7	-8	-6	-3	-6	-5	-12	-7	-3	-7	-6
17-18	0	-7	-6	-3	-6	-8	-8	-9	-4	-4	-6	-10	-6	-4	-8	-6
18-19	+2	-6	-6	-6	-3	-6	-6	-9	-4	-3	-6	-6	-4	-5	-6	-5
19-20	+2	-4	-3	-6	-1	-5	-4	-7	-4	-4	-5	-3	-2	-4	-4	-4
20-21	+2	-2	-1	-7	0	-5	-4	-6	-2	-1	-4	-1	-3	-4	-4	-2
21-22	+2	0	0	-7	-1	-5	-5	-5	-2	0	-2	+1	0	-2	-4	-2
22-23	+1	-1	-1	-6	-1	-3	-3	-5	-3	-1	-2	-1	0	-3	-3	-2
23-24	+1	-2	0	-8	-1	-3	-6	-1	-7	-2	-3	-1	-1	-4	-3	-3

## PORTO RICO MAGNETIC OBSERVATORY.

Diurnal variation of  $Y$ .

1917.

Hour.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Group means.			Year.
	I	I	II	II	III	III	III	II	II	I	I	I	II	III	III	
0-1	-1	+1	-1	-1	-1	-5	-3	-2	-1	-2	-1	-1	-0	-0	-2	-1
1-2	-2	-1	+1	0	+3	-3	-4	-2	-1	-3	-1	-1	-1	-1	-2	-1
2-3	-3	-3	+2	+1	+2	-2	-2	-1	0	-2	-1	-2	-2	0	-1	-1
3-4	-4	-3	+1	+1	+4	-2	-1	+2	+2	-2	-2	-3	-3	0	+1	-1
4-5	-1	0	+4	+5	+9	+2	+3	+6	+6	+1	-1	-2	-1	+4	+5	+3
5-6	0	+2	+4	+7	+16	+6	+6	+12	+10	+5	0	-1	-0	+7	+10	+6
6-7	+2	+3	+7	+11	+25	+16	+15	+30	+21	+10	+1	-3	+2	+12	+21	+11
7-8	+8	+3	+13	+19	+30	+25	+48	+37	+20	+5	-3	+3	+3	+22	+33	+20
8-9	+25	+16	+22	+23	+22	+37	+31	+48	+40	+30	+17	+11	+17	+29	+34	+27
9-10	+41	+29	+25	+21	+8	+32	+24	+35	+31	+30	+24	+26	+30	+27	+25	+27
10-11	+33	+32	+23	+19	-4	+22	+16	+17	+17	+19	+23	+30	+30	+19	+13	+21
11-12	+10	+18	+13	+11	-13	+11	+6	-6	+2	+6	+14	+25	+17	+8	-1	+8
12-13	-9	0	-1	-2	-18	-1	-4	-21	-10	-5	+3	+13	+2	-4	-11	-5
13-14	-21	-12	-15	-16	-23	-14	-13	-28	-21	-12	-6	-7	-12	-16	-19	-16
14-15	-26	-20	-22	-25	-23	-23	-21	-32	-25	-16	-14	-19	-20	-22	-25	-22
15-16	-24	-23	-21	-25	-19	-28	-25	-31	-24	-19	-17	-23	-22	-22	-26	-23
16-17	-14	-19	-16	-17	-9	-22	-18	-21	-19	-15	-14	-18	-16	-17	-18	-17
17-18	-7	-13	-12	-8	-3	-14	-10	-11	-15	-14	-13	-10	-11	-12	-9	-11
18-19	-6	-8	-10	-5	-2	-9	-5	-8	-13	-10	-9	-7	-7	-10	-6	-8
19-20	-4	-6	-10	-6	-3	-8	-5	-9	-12	-8	-7	-5	-6	-9	-6	-7
20-21	+1	-1	-6	-5	-2	-7	-5	-7	-10	-3	-2	-1	-1	-6	-5	-4
21-22	+2	+2	-3	-3	-1	-6	-4	-7	-7	-2	0	+1	+1	-4	-5	-2
22-23	+1	+2	-2	-3	0	-5	-6	-5	-5	-2	0	+0	+1	-3	-3	-2
23-24	-1	0	-1	-3	0	-5	-3	-5	-3	-3	0	0	0	-2	-3	-2

1918.

0-1	+1	0	-1	-1	-3	-4	0	-3	-1	0	-1	-2	0	-1	-2	-1
1-2	-1	-1	-1	-1	-1	-2	0	-2	-3	0	-1	-3	-2	-1	0	-1
2-3	-2	-2	-1	0	-1	0	0	0	-1	0	-3	-2	-2	0	+1	0
3-4	-3	-4	-1	0	0	0	+2	+1	+1	+2	-1	-2	-2	0	+1	0
4-5	-2	-1	+1	+2	+4	+2	+6	+6	+5	+2	-1	-2	-2	+2	+5	+2
5-6	-2	-1	+3	+4	+8	+5	+9	+9	+3	+1	-3	-1	-1	+5	+8	+4
6-7	-1	0	+6	+11	+21	+15	+21	+25	+16	+6	+2	-1	0	+10	+21	+10
7-8	-1	-2	+12	+20	+37	+26	+31	+43	+28	+14	+6	+2	+1	+18	+34	+18
8-9	+13	+7	+22	+24	+36	+26	+31	+40	+29	+22	+17	+12	+12	+24	+33	+23
9-10	+29	+20	+27	+25	+23	+20	+22	+24	+23	+23	+22	+21	+23	+24	+22	+23
10-11	+35	+26	+26	+25	+10	+9	+11	+7	+13	+17	+17	+23	+23	+25	+20	+18
11-12	+32	+19	+17	+17	0	+4	0	-8	+1	+8	+7	+12	+18	+11	-1	+9
12-13	+13	+7	+5	+2	-10	-3	-12	-19	-12	0	-2	-1	+4	-1	-11	-3
13-14	-14	-5	-9	-16	-20	-9	-20	-25	-20	-5	-8	-9	-9	-13	-18	-13
14-15	-29	-11	-18	-25	-26	-12	-24	-26	-21	-13	-13	-12	-16	-19	-22	-19
15-16	-31	-14	-21	-26	-24	-13	-23	-24	-20	-17	-14	-12	-18	-21	-21	-20
16-17	-23	-13	-18	-19	-15	-9	-18	-14	-14	-17	-11	-8	-14	-17	-14	-15
17-18	-12	-11	-13	-12	-10	-8	-11	-6	-10	-15	-10	-7	-10	-12	-9	-10
18-19	-5	-8	-10	-9	-7	-8	-8	-4	-8	-12	-8	-3	-6	-10	-7	-7
19-20	-3	-6	-10	-8	-6	-10	-8	-4	-6	-8	-4	0	-3	-8	-7	-6
20-21	+1	-2	-6	-7	-6	-10	-6	-5	-5	-5	0	0	0	-6	-7	-4
21-22	+2	+1	-3	-4	-6	-10	-5	-5	-3	-2	+2	0	+1	-3	-6	-3
22-23	+2	0	-3	-1	-3	-7	-1	-5	-1	-1	+2	0	+1	-1	-4	-2
23-24	+1	0	-3	0	-3	-6	0	-5	-1	-2	+1	-1	0	-1	-3	-2

*Diurnal variation of I.*

1917.

Hour.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Group means.			Year.	
	I	I	II	II	III	III	III	III	II	II	I	I	I	II	III		
0-1	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	
1-2	+0.5	+0.3	+0.9	+0.6	+0.3	+0.3	+0.3	+0.3	+0.5	+0.5	+0.5	+0.6	+0.5	+0.6	+0.3	+0.5	
2-3	+0.4	+0.3	+0.9	+0.5	+0.3	+0.3	+0.2	+0.3	+0.5	+0.4	+0.5	+0.5	+0.4	+0.6	+0.3	+0.4	
3-4	+0.3	+0.1	+0.8	+0.4	+0.3	+0.3	+0.3	+0.4	+0.5	+0.2	+0.4	+0.4	+0.3	+0.5	+0.3	+0.4	
4-5	0.0	0.0	+0.6	+0.3	+0.3	+0.3	+0.3	+0.4	+0.4	+0.4	+0.4	+0.3	+0.3	+0.5	+0.3	+0.4	
5-6	-0.1	-0.1	+0.5	+0.3	+0.3	+0.4	+0.3	+0.5	+0.3	0.0	+0.3	+0.2	+0.1	0.0	+0.3	+0.4	+0.2
6-7	0.0	-0.1	+0.3	+0.3	+0.3	+0.3	+0.2	+0.4	+0.2	-0.1	0.0	-0.1	-0.1	+0.2	+0.3	+0.1	+0.1
7-8	-0.2	-0.3	0.0	+0.2	+0.1	+0.3	-0.1	+0.4	+0.2	-0.3	-0.3	-0.4	-0.3	0.0	+0.2	0.0	0.0
8-9	-0.7	-0.7	-0.5	-0.3	-0.4	+0.1	-0.3	0.0	0.0	-0.4	-0.6	-0.7	-0.7	-0.3	-0.2	-0.4	-0.4
9-10	-0.8	-0.8	-0.7	-0.6	-1.0	-0.2	-0.6	-0.3	-0.2	-0.4	-0.8	-0.7	-0.8	-0.5	-0.5	-0.6	-0.6
10-11	-0.8	-0.7	-1.0	-1.0	-1.2	-0.7	-0.9	-0.6	-0.5	-0.5	-0.8	-0.8	-0.8	-0.8	-0.9	-0.8	-0.8
11-12	-0.5	-0.5	-1.2	-1.0	-1.4	-1.0	-1.0	-0.7	-0.8	-0.4	-0.7	-0.7	-0.6	-0.8	-1.0	-1.0	-0.8
12-13	-0.2	-0.2	-1.3	-0.8	-1.1	-0.9	-0.8	-0.8	-0.9	-0.5	-0.6	-0.6	-0.4	-0.9	-0.9	-0.7	-0.7
13-14	+0.1	+0.1	-1.1	-0.6	-0.6	-0.6	-0.5	-0.7	-0.6	-0.5	-0.3	-0.3	-0.1	-0.7	-0.6	-0.5	-0.5
14-15	+0.2	+0.2	-0.7	-0.5	-0.2	-0.3	-0.3	-0.5	-0.3	-0.2	-0.1	-0.1	-0.1	-0.4	-0.3	-0.2	-0.2
15-16	+0.2	+0.1	-0.5	-0.4	+0.3	-0.1	-0.1	-0.1	0.0	0.0	+0.2	0.0	+0.1	-0.2	0.0	0.0	0.0
16-17	+0.1	+0.2	-0.3	-0.1	+0.6	+0.2	+0.2	+0.3	+0.1	+0.1	+0.4	+0.2	+0.2	0.0	+0.3	+0.2	+0.2
17-18	+0.1	+0.2	0.0	+0.4	+0.7	+0.3	+0.3	+0.2	+0.1	0.0	+0.3	+0.2	+0.2	+0.1	+0.4	+0.2	+0.2
18-19	0.0	+0.3	+0.1	+0.3	+0.6	+0.2	+0.4	+0.2	0.0	+0.1	+0.2	+0.2	+0.2	+0.1	+0.4	+0.2	+0.2
19-20	+0.1	+0.3	+0.1	+0.2	+0.6	+0.2	+0.5	0.0	0.0	+0.2	+0.1	+0.2	+0.2	+0.1	+0.3	+0.2	+0.2
20-21	+0.1	+0.3	+0.5	+0.2	+0.3	+0.1	+0.4	+0.1	+0.1	+0.4	0.0	+0.2	+0.2	+0.3	+0.2	+0.2	+0.2
21-22	+0.1	+0.3	+0.6	+0.3	+0.3	+0.1	+0.4	0.0	0.0	+0.4	+0.2	+0.2	+0.2	+0.3	+0.2	+0.2	+0.2
22-23	+0.3	+0.4	+0.7	+0.3	+0.2	0.0	+0.3	0.0	+0.1	+0.4	+0.2	+0.3	+0.3	+0.4	+0.1	+0.3	+0.3
23-24	+0.4	+0.3	+0.7	+0.3	+0.2	0.0	+0.2	-0.1	+0.3	+0.4	+0.2	+0.3	+0.4	+0.1	+0.1	+0.3	+0.3

1918.

0-1	+0.6	+0.5	+0.8	+0.8	+0.2	+0.5	+0.5	+0.5	+0.7	+0.9	+0.5	+0.4	+0.5	+0.8	+0.4	+0.6	
1-2	+0.6	+0.6	+0.8	+0.7	+0.2	+0.5	+0.5	+0.6	+0.6	+0.8	+0.5	+0.4	+0.5	+0.7	+0.4	+0.6	
2-3	+0.4	+0.5	+0.7	+0.7	+0.3	+0.4	+0.5	+0.7	+0.3	+0.7	+0.5	+0.5	+0.5	+0.6	+0.5	+0.5	
3-4	+0.3	+0.4	+0.6	+0.5	+0.4	+0.4	+0.6	+0.7	+0.2	+0.6	+0.4	+0.4	+0.4	+0.5	+0.5	+0.5	
4-5	+0.2	+0.3	+0.4	+0.4	+0.4	+0.4	+0.6	+0.8	0.0	+0.4	+0.3	+0.3	+0.3	+0.3	+0.6	+0.4	
5-6	0.0	+0.1	+0.2	+0.4	+0.4	+0.2	+0.6	+0.7	0.0	+0.3	+0.1	+0.2	+0.1	+0.2	+0.5	+0.3	
6-7	0.0	-0.1	+0.1	+0.2	+0.3	0.0	+0.4	+0.6	-0.1	+0.1	0.0	0.0	0.0	+0.1	+0.3	+0.1	
7-8	-0.4	-0.4	-0.3	+0.1	+0.2	-0.4	-0.4	-0.1	+0.1	-0.4	-0.3	-0.4	-0.4	-0.2	0.0	-0.2	
8-9	-0.7	-0.9	-0.6	-0.1	-0.1	-0.8	-1.0	-0.6	-0.5	-0.6	-0.8	-0.8	-0.8	-0.4	-0.6	-0.6	
9-10	-0.7	-1.0	-0.8	-0.5	-0.6	-0.9	-1.3	-1.2	-0.6	-0.8	-0.9	-0.9	-0.9	-0.7	-1.0	-0.9	
10-11	-0.4	-0.9	-0.9	-1.0	-0.9	-1.2	-1.4	-1.6	-0.8	-0.9	-1.0	-1.1	-0.8	-0.9	-1.3	-1.0	
11-12	-0.3	-0.7	-0.9	-1.3	-1.2	-1.1	-1.3	-1.8	-0.8	-0.8	-0.8	-1.1	-0.7	-1.0	-1.3	-1.0	
12-13	-0.2	-0.4	-0.9	-1.1	-1.0	-0.8	-0.8	-1.6	-0.4	-0.8	-0.6	-0.7	-0.5	-0.8	-1.0	-0.8	
13-14	+0.1	-0.1	-0.7	-1.0	-0.7	-0.5	-0.5	-1.0	-0.3	-0.6	-0.3	-0.3	-0.2	-0.6	-0.7	-0.5	
14-15	+0.3	0.0	-0.4	-0.7	-0.4	0.0	-0.2	-0.4	-0.2	-0.4	0.0	0.0	+0.1	-0.4	-0.3	-0.2	
15-16	+0.1	+0.1	-0.2	-0.6	+0.1	+0.4	+0.2	0.0	-0.1	-0.1	0.0	+0.4	+0.1	-0.2	+0.2	0.0	
16-17	+0.1	+0.3	+0.1	-0.2	+0.4	+0.6	+0.6	+0.4	+0.1	+0.2	+0.1	+0.2	+0.6	+0.3	0.0	+0.5	+0.3
17-18	-0.1	+0.3	+0.2	0.0	+0.4	+0.5	+0.5	+0.6	+0.1	+0.1	+0.3	+0.6	+0.3	+0.1	+0.5	+0.3	
18-19	-0.1	+0.4	+0.3	+0.2	+0.4	+0.4	+0.3	+0.6	+0.2	+0.1	+0.4	+0.6	+0.3	+0.2	+0.4	+0.3	
19-20	0.0	+0.3	+0.3	+0.4	+0.3	+0.3	+0.3	+0.5	+0.2	+0.2	+0.4	+0.4	+0.3	+0.3	+0.4	+0.3	
20-21	0.0	+0.3	+0.3	+0.5	+0.2	+0.3	+0.3	+0.5	+0.3	+0.2	+0.3	+0.2	+0.2	+0.3	+0.3	+0.3	
21-22	0.0	+0.1	+0.2	+0.6	+0.2	+0.2	+0.3	+0.4	+0.4	+0.3	+0.1	+0.1	+0.1	+0.3	+0.3	+0.2	
22-23	+0.1	+0.2	+0.3	+0.5	+0.1	+0.2	+0.3	+0.3	+0.3	+0.4	+0.2	+0.2	+0.1	+0.3	+0.3	+0.2	
23-24	+0.1	+0.3	+0.3	+0.6	+0.1	+0.3	+0.3	+0.2	+0.2	+0.6	+0.4	+0.3	+0.1	+0.2	+0.5	+0.2	

Diurnal variation of *F*.

1917.

Hour.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Group means.			Year.
	I	I	II	II	III	III	III	II	II	I	I	I	I	II	III	
0-1	+ 4	+ 1	- 3	- 5	- 4	- 5	- 0	+ 1	+ 2	- 2	+ 2	+ 2	+ 2	- 1	- 3	- 1
1-2	+ 3	+ 2	- 2	- 3	- 5	- 3	- 3	+ 1	+ 4	+ 4	+ 1	+ 2	+ 2	+ 1	- 3	0
2-3	+ 4	+ 5	0	- 3	- 4	- 3	- 3	+ 2	+ 4	+ 5	+ 1	+ 4	+ 3	+ 1	- 2	+ 1
3-4	+ 6	+ 7	+ 1	- 2	- 2	- 1	- 2	+ 3	+ 6	+ 6	+ 3	+ 6	+ 5	+ 3	- 1	+ 3
4-5	+ 7	+ 7	+ 1	- 1	0	- 1	- 2	+ 2	+ 7	+ 7	+ 3	+ 5	+ 6	+ 4	0	+ 3
5-6	+ 7	+ 7	+ 1	- 1	0	0	0	+ 3	+ 7	+ 8	+ 5	+ 7	+ 6	+ 4	+ 1	+ 4
6-7	+ 6	+ 9	+ 2	0	- 2	0	+ 2	- 1	+ 4	+ 6	+ 6	+ 8	+ 7	+ 3	0	+ 3
7-8	+ 9	+ 11	+ 4	+ 4	- 3	- 3	- 8	+ 3	+ 4	+ 7	+ 14	+ 10	+ 1	- 3	+ 3	+ 3
8-9	+ 6	+ 8	+ 4	0	+ 1	- 5	+ 1	- 11	- 10	- 3	+ 4	+ 10	+ 7	- 2	- 3	0
9-10	- 5	+ 2	+ 4	+ 5	+ 6	- 2	+ 3	- 7	- 10	- 6	0	+ 1	0	- 2	0	- 1
10-11	- 11	- 6	+ 4	+ 6	+ 11	+ 2	+ 6	- 5	- 9	- 6	- 3	- 6	- 7	- 1	+ 4	- 1
11-12	- 11	- 10	+ 6	+ 6	+ 12	+ 5	+ 5	- 2	- 4	- 6	- 2	- 8	- 8	+ 1	+ 5	- 1
12-13	- 13	- 12	+ 5	+ 5	+ 8	+ 3	+ 3	+ 2	- 3	- 4	- 4	- 10	- 10	+ 1	+ 4	- 2
13-14	- 11	- 15	+ 4	+ 6	+ 4	+ 3	+ 2	+ 3	- 1	- 4	- 6	- 10	- 10	+ 1	+ 3	- 2
14-15	- 8	- 12	0	+ 6	+ 2	+ 5	+ 1	+ 4	0	- 4	- 6	- 7	- 8	+ 1	+ 3	- 2
15-16	- 5	- 6	- 1	+ 5	- 1	+ 7	+ 2	+ 2	- 2	- 5	- 4	- 5	- 5	- 1	+ 2	- 1
16-17	- 4	- 5	- 3	- 2	- 6	+ 3	0	- 2	- 1	- 8	- 4	- 3	- 4	- 4	- 1	- 3
17-18	- 1	- 3	- 6	- 7	- 7	0	- 2	- 3	- 1	- 4	- 2	- 3	- 2	- 5	- 3	- 3
18-19	+ 2	0	- 5	- 5	- 4	- 1	- 3	+ 1	+ 2	- 1	+ 1	- 3	0	- 2	- 2	- 1
19-20	+ 3	+ 3	- 3	- 3	- 1	- 2	- 2	+ 4	+ 3	+ 2	- 1	+ 2	+ 2	0	0	+ 1
20-21	+ 2	+ 2	- 5	- 3	0	- 1	- 1	+ 3	+ 3	+ 1	+ 1	- 1	+ 1	- 1	0	0
21-22	+ 2	+ 2	- 5	- 3	- 2	- 1	0	+ 2	+ 3	+ 2	0	- 1	+ 1	- 1	0	0
22-23	+ 2	+ 3	- 3	- 2	- 1	0	0	+ 3	+ 2	+ 2	0	- 1	+ 1	0	0	0
23-24	+ 4	+ 3	- 1	- 1	- 2	- 1	- 1	+ 3	+ 1	+ 3	0	0	+ 2	0	0	+ 1

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0-1	+ 2	- 1	0	- 4	0	- 4	- 2	- 1	- 2	+ 1	0	+ 1	+ 1	- 1	- 2	- 1	
1-2	+ 4	+ 2	0	- 2	- 2	- 4	- 3	- 1	0	+ 2	0	+ 2	+ 2	- 3	- 2	0	
2-3	+ 5	+ 2	0	- 2	- 1	- 3	- 2	- 2	+ 3	+ 2	+ 1	+ 4	+ 3	- 2	+ 1	+ 2	
3-4	+ 5	+ 3	+ 3	- 1	+ 1	- 3	- 2	- 1	+ 3	+ 3	+ 2	+ 6	+ 4	- 1	+ 2	+ 2	
4-5	+ 6	+ 5	+ 3	0	0	- 4	- 2	- 2	- 2	+ 2	+ 3	+ 6	+ 5	- 2	+ 2	+ 2	
5-6	+ 7	+ 5	+ 4	0	+ 1	- 3	- 3	0	+ 2	+ 3	+ 5	+ 8	+ 6	- 1	+ 2	+ 2	
6-7	+ 8	+ 6	+ 5	0	- 1	- 4	- 2	- 1	+ 2	+ 2	+ 6	+ 8	+ 7	+ 2	- 2	+ 2	
7-8	+ 12	+ 12	+ 7	- 1	- 5	- 3	- 2	- 7	0	0	+ 8	+ 10	+ 2	- 4	+ 2	+ 2	
8-9	+ 10	+ 11	+ 6	0	- 9	0	- 1	- 6	- 1	- 2	+ 6	+ 7	+ 8	+ 1	- 4	+ 2	
9-10	+ 1	+ 7	+ 3	+ 4	- 4	+ 4	+ 3	+ 2	- 1	- 1	+ 2	0	+ 3	+ 1	+ 1	+ 2	
10-11	- 10	0	0	+ 5	- 1	+ 11	+ 7	+ 6	0	- 1	- 1	- 2	- 3	+ 1	+ 6	+ 1	
11-12	- 15	- 7	- 2	+ 5	+ 2	+ 11	+ 10	+ 8	- 1	0	- 2	- 6	- 7	0	+ 8	0	
12-13	- 19	- 9	- 6	+ 4	+ 3	+ 8	+ 10	+ 9	- 3	0	- 4	- 9	- 10	- 1	+ 7	- 1	
13-14	- 18	- 10	- 8	+ 6	+ 2	+ 5	+ 6	+ 5	+ 5	0	- 5	- 11	- 11	- 1	+ 4	- 2	
14-15	- 12	- 10	- 7	+ 4	+ 4	+ 3	+ 3	+ 5	+ 3	0	- 3	- 5	- 10	- 9	- 2	+ 4	- 2
15-16	- 6	- 8	- 7	+ 3	+ 3	+ 1	+ 11	+ 7	+ 6	- 1	- 2	- 6	- 4	- 7	- 3	+ 2	- 3
16-17	- 2	- 7	- 6	0	0	- 1	- 2	- 2	- 2	- 2	- 5	- 4	- 9	- 6	- 3	- 1	- 3
17-18	+ 1	- 5	- 5	- 4	- 1	- 3	- 3	- 5	- 3	- 3	- 3	- 6	- 3	- 4	- 3	- 3	- 3
18-19	+ 1	- 4	- 4	- 5	+ 2	- 3	- 3	- 5	- 2	- 2	- 4	- 1	- 2	- 3	- 2	- 3	- 3
19-20	+ 3	- 2	+ 1	- 3	+ 2	- 2	- 2	- 3	- 1	+ 1	- 1	+ 3	+ 2	- 1	- 1	0	- 1
20-21	+ 3	+ 1	+ 2	- 3	+ 3	- 2	- 2	- 1	+ 1	+ 1	- 1	+ 3	+ 2	0	- 1	- 1	+ 1
21-22	+ 4	+ 2	+ 4	- 2	+ 1	- 2	- 2	- 1	+ 2	+ 2	+ 1	+ 1	+ 3	+ 2	- 1	- 1	+ 1
22-23	+ 4	+ 2	+ 3	- 1	0	- 1	- 3	0	+ 1	+ 3	0	+ 4	+ 3	+ 2	- 1	- 1	+ 1
23-24	+ 4	+ 1	+ 5	- 3	0	0	- 5	+ 1	- 1	+ 3	0	+ 2	+ 2	+ 1	- 1	- 1	+ 1

## DIURNAL VARIATION.

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*Diurnal variation of D.*

[International quiet days (Greenwich mean time).]

1917.

Hour.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Group means.			Year.
	I	I	II	II	III	III	III	III	II	II	I	I	I	II	III	
0- 1	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'	'
1- 2	0.0	+0.1	-0.4	-0.9	-0.2	-0.8	-0.6	-0.9	-1.2	-0.4	-0.3	0.0	-0.1	-0.7	-0.6	-0.5
2- 3	0.0	+0.4	-0.2	-0.6	-0.2	-0.9	-0.7	-0.8	-1.0	-0.3	-0.2	+0.1	+0.1	-0.5	-0.7	-0.4
3- 4	0.0	+0.4	0.0	-0.6	-0.1	-0.7	-0.7	-0.6	-0.7	-0.3	-0.2	+0.2	+0.1	-0.4	-0.5	-0.3
4- 5	0.2	+0.3	0.1	-0.5	+0.1	-0.6	-0.6	-0.6	-0.6	-0.3	-0.2	0.0	0.0	-0.4	-0.4	-0.3
5- 6	-0.4	+0.2	+0.2	-0.4	+0.2	-0.4	-0.6	-0.4	-0.4	-0.3	-0.2	0.0	-0.2	-0.3	-0.3	-0.2
6- 7	-0.4	-0.2	+0.1	-0.1	+0.3	-0.3	-0.5	-0.2	-0.2	-0.2	-0.3	-0.3	-0.3	-0.1	-0.2	-0.2
7- 8	-0.4	-0.3	0.0	+0.6	-0.2	-0.3	0.0	-0.1	-0.1	-0.4	-0.4	-0.4	-0.4	0.0	0.0	-0.1
8- 9	-0.2	+0.1	+0.2	+0.5	+1.1	+0.3	+0.2	+0.6	+0.4	+0.3	-0.1	-0.2	-0.1	+0.3	+0.6	+0.3
9-10	-0.1	+0.5	+0.3	+0.6	+1.5	+0.8	+0.4	+1.2	+0.9	+0.6	+0.1	-0.2	+0.1	+0.6	+1.0	+0.6
10-11	+0.3	+0.6	+0.5	+0.9	+2.6	+2.4	+1.7	+3.4	+2.4	+1.4	+0.2	-0.2	+0.2	+1.3	+2.5	+1.4
11-12	+1.0	+0.8	+1.3	+2.0	+3.2	+4.2	+3.2	+5.8	+4.2	+2.6	+0.9	-0.3	+0.6	+2.5	+4.1	+2.4
12-13	+3.3	+2.1	+2.5	+3.0	+2.6	+4.9	+3.9	+6.1	+4.9	+3.8	+2.0	+1.4	+2.2	+3.6	+4.4	+3.4
13-14	+5.4	+3.8	+3.0	+3.2	+1.0	+4.2	+3.2	+4.9	+4.0	+3.8	+3.0	+3.3	+3.9	+3.5	+3.3	+3.6
14-15	+4.3	+3.6	+2.7	+3.2	-0.2	+2.6	+2.1	+2.5	+2.4	+2.6	+3.0	+4.1	+3.8	+2.7	+1.8	+2.7
15-16	+1.2	+1.7	+1.5	+2.3	-1.2	+1.1	+0.7	-0.4	+0.8	+0.8	+2.0	+3.5	+2.1	+1.3	0.0	+1.2
16-17	-1.1	-0.4	-0.2	+0.6	-1.9	-0.6	-0.4	-2.7	-0.6	-0.8	+0.4	+1.6	+0.1	-0.2	-1.4	-0.5
17-18	-2.4	-1.9	-2.0	-1.4	-2.4	-2.0	-1.1	-3.9	-1.9	-1.7	-0.8	-0.9	-1.5	-1.8	-2.4	-1.9
18-19	-3.1	-2.6	-2.8	-2.9	-2.5	-3.2	-2.4	-4.3	-2.8	-2.3	-1.6	-2.6	-2.5	-2.7	-3.1	-2.8
19-20	-2.9	-3.2	-2.5	-3.2	-2.1	-3.7	-2.8	-3.9	-2.7	-2.5	-2.0	-3.2	-2.8	-2.7	-3.1	-2.9
20-21	-1.8	-2.7	-1.6	-2.4	-1.0	-2.9	-2.0	-2.5	-2.3	-2.2	-1.9	-2.6	-2.3	-2.1	-2.1	-2.2
21-22	-1.0	-1.8	-1.0	-1.2	-0.6	-1.9	-1.1	-1.0	-2.1	-1.9	-1.5	-1.4	-1.4	-1.6	-1.2	-1.4
22-23	-0.8	-0.9	-0.7	-0.9	-0.3	-1.1	-0.4	-0.9	-1.8	-1.4	-1.0	-0.9	-0.9	-1.2	-0.7	-0.9
23-24	-0.6	-0.6	-0.9	-1.0	-0.5	-0.9	-0.7	-1.1	-1.7	-1.0	-0.8	-0.7	-0.7	-1.2	-0.8	-0.9

1918.

0- 1	+0.1	-0.3	-0.7	-0.6	-0.8	-1.1	-0.8	-0.8	-0.8	-0.7	+0.1	0.0	0.0	-0.7	-0.9	-0.5
1- 2	+0.2	-0.2	-0.4	-0.4	-0.5	-1.1	-0.7	-0.8	-0.6	-0.4	-0.2	+0.2	+0.1	-0.4	-0.8	-0.4
2- 3	+0.2	-0.2	-0.3	0.0	-0.3	-0.8	-0.4	-0.6	-0.4	-0.2	-0.3	+0.2	+0.1	-0.2	-0.5	-0.2
3- 4	0.0	-0.2	-0.4	+0.2	-0.4	-0.7	-0.4	-0.6	-0.5	-0.3	+0.2	+0.1	0.0	-0.2	-0.5	-0.2
4- 5	0.0	-0.1	-0.2	-0.1	-0.3	-0.6	-0.3	-0.6	-0.6	-0.2	-0.1	-0.1	-0.1	-0.3	-0.4	-0.3
5- 6	-0.1	-0.2	-0.3	0.0	-0.1	-0.4	-0.1	-0.4	-0.5	-0.2	-0.1	-0.1	-0.1	-0.2	-0.3	-0.2
6- 7	-0.3	-0.3	-0.2	0.0	-0.1	-0.3	0.0	-0.1	-0.2	0.0	-0.2	-0.1	-0.2	-0.1	-0.1	-0.2
7- 8	-0.4	-0.3	-0.3	0.0	0.0	-0.3	+0.2	0.0	-0.2	+0.2	-0.2	-0.2	-0.3	-0.1	0.0	-0.1
8- 9	-0.2	+0.2	0.0	+0.2	+0.8	+0.1	+0.8	+0.5	+0.2	+0.3	0.0	0.1	-0.0	+0.2	+0.5	+0.2
9-10	0.0	+0.1	+0.3	+0.4	+1.3	+0.6	+1.2	+0.9	+0.6	+0.4	+0.1	+0.1	+0.1	+0.4	+1.0	+0.5
10-11	-0.1	+0.2	+0.5	+1.4	+2.8	+1.6	+2.5	+2.7	+1.5	+0.8	+0.1	+0.1	+0.1	+1.1	+2.4	+1.2
11-12	-0.1	+0.2	+1.1	+2.6	+4.6	+2.8	+3.7	+5.0	+2.9	+1.5	+0.4	+0.3	+0.2	+2.0	+4.0	+2.1
12-13	+1.8	+1.4	+2.2	+2.9	+4.6	+3.2	+3.7	+4.6	+3.6	+2.6	+1.9	+1.3	+1.6	+2.8	+4.0	+2.8
13-14	+3.8	+2.4	+2.9	+2.7	+3.0	+2.4	+2.7	+2.8	+3.0	+3.0	+2.6	+2.4	+2.8	+2.9	+2.7	+2.8
14-15	+4.4	+2.4	+2.9	+2.5	+1.0	+1.6	+1.6	+0.9	+2.3	+2.4	+2.4	+2.8	+3.0	+2.5	+1.3	+2.3
15-16	+4.1	+1.5	+1.8	+1.5	-0.1	+1.0	+0.2	-0.9	+0.9	+1.6	+1.1	+1.5	+2.0	+1.5	0.0	+1.2
16-17	+1.5	+0.4	+0.6	-0.2	-1.9	0.0	-1.3	-1.9	-0.6	+0.6	-0.2	-0.2	+0.4	+0.1	-1.3	-0.3
17-18	-1.9	-0.5	-0.8	-2.2	-3.1	-0.8	-2.2	-2.8	-1.7	-0.5	-1.0	-1.3	-1.2	-1.3	-2.2	-1.6
18-19	-3.8	-1.1	-1.7	-3.3	-3.6	-1.3	-2.5	-2.7	-2.0	-1.6	-1.7	-2.1	-2.2	-2.2	-2.5	-2.3
19-20	-4.1	-1.2	-1.9	-3.2	-2.9	-1.7	-2.5	-2.2	-1.9	-2.3	-1.6	-2.0	-2.2	-2.3	-2.3	-2.3
20-21	-2.9	-1.0	-1.5	-2.1	-1.7	-1.1	-2.0	-1.1	-1.7	-2.3	-1.3	-1.4	-1.7	-1.9	-1.5	-1.7
21-22	-1.4	-1.3	-1.3	-1.0	-1.0	-0.9	-1.3	-0.6	-1.3	-2.1	-1.2	-0.8	-1.2	-1.4	-0.9	-1.2
22-23	-0.6	-1.1	-1.0	-0.8	-0.8	-1.0	-1.0	-0.5	-1.0	-1.8	-0.9	-0.3	-0.7	-1.2	-0.8	-0.9
23-24	-0.3	-0.8	-1.1	-0.6	-0.8	-1.1	-1.0	-0.7	-1.0	-1.1	-0.3	-0.1	-0.4	-1.0	-0.9	-0.7

## PORTO RICO MAGNETIC OBSERVATORY.

*Diurnal variation of H.*

[International quiet days (Greenwich mean time).]

1917.

Hour.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Group means.			Year.
	I	I	II	II	III	III	III	III	II	II	I	I	I	II	III	
0-1	γ 0	-2	γ 9	γ 5	γ 5	γ 5	γ 5	γ 2	γ 1	γ 3	γ 1	γ 0	-1	γ 4	γ 3	-3
1-2	-2	-4	-8	-5	-3	-4	-3	+2	-4	-4	-2	-2	-2	-5	-2	-3
2-3	-1	-3	-9	-4	-3	-4	-3	+3	-2	-4	-3	-2	-2	-5	-2	-3
3-4	-1	-2	-9	-5	-2	-4	-2	+4	-3	-4	-2	-2	-2	-5	-1	-3
4-5	-2	-2	-11	-6	-3	-4	-3	+2	-4	-3	-2	-2	-2	-6	-2	-3
5-6	0	0	-10	-6	-2	-4	-2	+2	-5	-1	-2	-1	-1	-6	-2	-3
6-7	0	+1	-9	-6	-4	-3	-2	+1	-6	+2	-1	0	0	-5	-2	-2
7-8	+1	+3	-8	-5	-5	-2	-2	0	-4	+4	0	+1	+1	-3	-2	-1
8-9	+3	+4	-7	-4	-5	-2	-2	-2	+6	+1	+2	+2	+2	-2	-3	-1
9-10	+5	+5	-6	-4	-5	-3	-1	-2	0	+6	+2	+4	+4	-1	-3	0
10-11	+4	+6	-4	-4	-5	-3	+1	-2	+6	+6	+6	+6	0	-2	+1	+1
11-12	+8	+9	-1	-3	-6	-6	+3	-8	-2	+5	+8	+11	+9	0	-4	+1
12-13	+12	+9	+6	0	+3	-7	+3	-11	0	+3	+8	+12	+10	+2	-3	+3
13-14	+6	+6	+9	+5	+12	-1	+5	-9	+3	+3	+7	+7	+6	+5	+2	+4
14-15	+1	0	+14	+11	+20	+8	+11	-3	+7	+1	+5	+3	+2	+8	+9	+6
15-16	+1	-1	+20	+12	+22	+14	+12	+3	+12	0	+4	-1	+1	+11	+13	+8
16-17	-4	-4	+19	+9	+18	+14	+6	+4	+11	0	0	-4	-3	+10	+10	+6
17-18	-10	-7	+17	+9	+11	+10	0	+3	+8	-1	-2	-6	-6	+8	+6	+3
18-19	-10	-7	+14	+10	+4	+8	0	+4	+3	-2	-4	-5	-6	+6	+4	+1
19-20	-6	-3	+9	+8	-2	+6	0	+2	-2	-4	-6	-4	-5	+3	+2	0
20-21	-3	-3	+2	+3	-3	-10	+1	-2	0	-3	-6	-8	-5	-1	-3	-3
21-22	-1	-3	-4	-3	-12	-2	-4	-1	-3	-2	-7	-6	-4	-3	-5	-4
22-23	0	-2	-6	-4	-10	-2	-5	+1	-2	0	-3	-4	-2	-3	-4	-3
23-24	0	+1	-8	-4	-7	-4	-4	+3	-1	0	-1	-1	-1	-3	-3	-2

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0-1	+1	-2	-4	-5	-2	-6	-4	-8	-5	-1	-5	-3	-2	-4	-5	-4
1-2	+1	-1	-5	-6	-3	-6	-2	-5	-6	-2	-4	-1	-1	-4	-4	-3
2-3	0	-2	-6	-6	-3	-6	-2	-5	-6	-2	-4	-1	-2	-5	-4	-4
3-4	-1	-2	-5	-5	-3	-6	-2	-3	-8	-3	-2	0	-1	-5	-4	-3
4-5	0	-3	-6	-6	-3	-7	-4	-6	-6	-3	-2	-2	-2	-6	-5	-4
5-6	+1	-2	-6	-6	-5	-7	-5	-8	-4	-4	-2	-2	-2	-5	-6	-4
6-7	+2	-3	-6	-6	-4	-6	-6	-10	-3	-2	-4	-2	-2	-4	-6	-4
7-8	+3	-1	-2	-4	-3	-6	-8	-10	-2	-1	-2	-2	-2	-2	-7	-3
8-9	+5	+1	0	-4	-4	-5	-9	-10	0	0	-1	-2	-1	-1	-7	-3
9-10	+5	+2	+2	-3	-5	-4	-9	-8	+2	+1	-1	+2	0	-6	-2	-2
10-11	+5	+2	+2	-3	-5	-5	-2	-5	-7	+2	+2	+4	+1	+4	-5	0
11-12	+9	+11	+8	-3	-7	+2	0	-6	+5	+4	+11	+7	+9	+4	-3	+3
12-13	+12	+15	+12	-3	-6	-7	+8	+2	+7	+4	+14	+10	+13	+5	+3	+7
13-14	+6	+15	+12	+2	+3	+10	+17	+15	+8	+4	+14	+10	+11	+6	+11	+10
14-15	-3	+10	+10	+8	+12	+13	+20	+24	+8	+4	+12	+9	+7	+7	+17	+11
15-16	-6	+3	+10	+11	+19	+14	+18	+27	+9	+5	+8	+8	+3	+9	+19	+10
16-17	-11	-1	+7	+13	+17	+11	+14	+25	+5	+7	+5	+3	-1	+8	+17	+8
17-18	-15	-3	+4	+14	+13	+9	+7	+17	+3	+4	0	-1	-5	+6	+12	+4
18-19	-10	-5	+1	+11	+9	+7	+1	+9	+1	-1	-4	-4	-6	+3	+6	+1
19-20	-4	-8	-3	+9	+2	+4	-5	+2	+1	-4	-6	-9	-7	+1	+1	-2
20-21	-1	-10	-8	+4	-6	-2	-10	-6	0	-7	-8	-8	-7	-3	-6	-5
21-22	+2	-9	-8	0	-7	-5	-7	-11	-1	-5	-8	-4	-5	-4	-7	-5
22-23	+1	-6	-6	-3	-5	-6	-4	-9	0	-2	-8	-4	-4	-3	-6	-4
23-24	+1	-4	-4	-4	-3	-5	-3	-8	-5	-2	-7	-3	-3	-4	-5	-4

*Diurnal variation of X.*

[International quiet days (Greenwich mean time).]

1917.

Hour.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Group means.			Year.
	I	I	II	II	III	III	III	III	II	II	I	I	I	II	III	
0- 1	γ 0	γ -2	γ -9	γ -5	γ -5	γ -5	γ -5	γ -2	γ -3	γ 0	-1	-2	-1	-5	γ -3	γ -3
1- 2	-2	-4	-8	-5	-3	-4	-3	+2	-1	-4	-2	-2	-2	-5	-2	-3
2- 3	-1	-3	-9	-4	-3	-4	-3	+3	-2	-4	-3	-2	-2	-5	-2	-3
3- 4	-1	-2	-10	-5	-2	-4	-2	+2	-3	-4	-2	-2	-2	-5	-1	-3
4- 5	-2	-2	-11	-6	-3	-4	-3	+2	-4	-3	-2	-2	-2	-6	-2	-3
5- 6	0	0	-10	-6	-2	-4	-2	+2	-5	-1	-2	-1	-1	-6	-2	-3
6- 7	0	+1	-9	-6	-4	-3	-2	+1	-6	+2	-1	0	0	-5	-2	-2
7- 8	+1	+3	-8	-5	-5	-2	-2	-0	-4	+4	+1	+1	+1	-3	-2	-1
8- 9	+3	+4	-7	-4	-4	-3	-1	-1	-2	+6	+1	+2	+2	-2	-3	-1
9-10	+5	+5	-6	-4	-4	-2	-2	+0	+6	+2	+4	+6	+6	-1	-2	0
10-11	+4	+6	-4	-4	-4	-2	+2	+1	+7	+6	+6	+6	+6	0	-1	+1
11-12	+8	+9	0	-2	-4	-4	+5	-5	0	+6	+8	+11	+9	+1	-2	+3
12-13	+14	+10	+7	+1	+4	-5	+5	-8	+2	+5	+9	+13	+12	+4	-1	+5
13-14	+9	+8	+10	+7	+12	+1	-7	+5	+5	+8	+8	+8	+8	+7	+3	+6
14-15	+3	+2	+15	+13	+20	+9	+12	-2	+8	+2	+6	+5	+4	+9	+10	+8
15-16	+2	0	+21	+14	+21	+15	+12	+3	+12	0	+5	+1	+2	+12	+13	+9
16-17	-5	-4	+19	+9	+17	+14	+6	+3	+11	0	-3	-3	-3	+10	+10	+6
17-18	-11	-8	+16	+8	+10	+9	-1	+1	+7	-2	-2	-6	-7	+7	+5	+2
18-19	-12	-8	+13	+9	+3	+6	-1	+2	+2	-3	-5	-6	-8	+5	+2	0
19-20	-7	-5	+8	+6	-3	+4	-3	-3	-3	-5	-7	-6	-6	+2	0	-2
20-21	-4	-4	+1	+2	-10	0	-3	-1	-4	-7	-9	-6	-6	-2	-4	-4
21-22	-1	-4	-4	-4	-12	-3	-5	-1	-4	-3	-8	-7	-5	-4	-5	-5
22-23	0	-2	-6	-4	-10	-3	-5	+1	-3	-1	-3	-4	-2	-4	-4	-3
23-24	0	-1	-8	-4	-7	-4	-4	+2	-2	0	-1	-1	-1	-4	-3	-3

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0- 1	+ 1	- 2	- 4	- 5	- 2	- 6	- 4	- 8	- 5	- 1	- 5	- 3	- 2	- 4	- 5	- 4
1- 2	+ 1	- 1	- 5	- 5	- 3	- 6	- 2	- 5	- 6	- 2	- 4	- 1	- 2	- 4	- 4	- 4
2- 3	0	- 2	- 6	- 6	- 3	- 6	- 2	- 5	- 6	- 2	- 4	- 1	- 2	- 5	- 4	- 3
3- 4	- 1	- 2	- 5	- 5	- 3	- 6	- 4	- 8	- 8	- 3	- 2	0	- 1	- 5	- 4	- 3
4- 5	0	- 3	- 6	- 8	- 3	- 7	- 4	- 6	- 7	- 3	- 3	- 2	- 2	- 6	- 5	- 4
5- 6	+ 1	- 2	- 6	- 6	- 5	- 7	- 5	- 8	- 4	- 4	- 4	- 2	- 2	- 5	- 6	- 4
6- 7	+ 2	- 3	- 6	- 6	- 4	- 6	- 6	- 10	- 3	- 2	- 4	- 2	- 2	- 4	- 7	- 4
7- 8	+ 3	- 1	- 2	- 4	- 4	- 6	- 6	- 10	- 2	- 1	- 2	- 2	- 2	- 2	- 7	- 3
8- 9	+ 5	+ 1	0	- 4	- 4	- 5	- 9	- 10	- 2	0	- 1	- 2	+ 1	- 2	- 7	- 3
9-10	+ 5	+ 2	+ 2	- 3	- 4	- 4	- 8	- 8	0	+ 2	+ 1	- 1	+ 2	0	- 6	- 1
10-11	+ 5	+ 5	+ 3	- 2	- 4	- 1	- 4	- 6	+ 3	+ 2	+ 4	+ 1	+ 4	+ 1	- 4	0
11-12	+ 9	+ 11	+ 8	- 2	- 5	+ 3	+ 2	- 4	+ 6	+ 5	+ 11	+ 7	+ 10	+ 4	- 1	+ 4
12-13	+ 13	+ 16	+ 13	- 2	- 4	+ 9	+ 10	+ 4	+ 9	+ 5	+ 15	+ 11	+ 14	+ 6	+ 5	+ 8
13-14	+ 8	+ 16	+ 13	+ 3	+ 4	+ 11	+ 18	+ 16	+ 10	+ 6	+ 15	+ 11	+ 12	+ 8	+ 12	+ 11
14-15	- 1	+ 11	+ 11	+ 9	+ 12	+ 14	+ 21	+ 24	+ 9	+ 5	+ 13	+ 10	+ 8	+ 8	+ 18	+ 12
15-16	- 4	+ 4	+ 11	+ 12	+ 19	+ 14	+ 18	+ 26	+ 9	+ 6	+ 8	+ 9	+ 4	+ 10	+ 19	+ 11
16-17	- 10	- 1	+ 7	+ 13	+ 16	+ 11	+ 13	+ 24	+ 5	+ 7	+ 5	+ 3	- 1	+ 8	+ 16	+ 8
17-18	- 16	- 3	+ 4	+ 13	+ 12	+ 9	+ 6	+ 16	+ 2	+ 4	0	- 2	- 5	+ 6	+ 11	+ 4
18-19	- 12	- 6	0	+ 9	+ 7	+ 6	0	+ 8	0	- 2	- 5	- 5	- 7	+ 2	+ 5	0
19-20	- 6	- 9	- 4	+ 7	+ 1	+ 3	- 6	- 6	- 1	- 8	- 9	- 9	- 8	- 1	0	- 3
20-21	- 2	- 10	- 9	0	- 8	- 5	- 8	- 11	- 2	- 6	- 9	- 9	- 8	- 4	- 7	- 6
21-22	+ 1	- 10	- 9	0	- 5	- 6	- 4	- 9	- 2	- 6	- 9	- 9	- 6	- 4	- 8	- 6
22-23	+ 1	- 6	- 6	- 3	- 5	- 6	- 4	- 9	0	- 3	- 8	- 4	- 4	- 3	- 6	- 4
23-24	+ 1	- 4	- 4	- 4	- 3	- 6	- 4	- 8	- 6	- 2	- 7	- 3	- 3	- 4	- 5	- 4

*Diurnal variation of Y.*

[International quiet days (Greenwich mean time).]

1917.

Hour.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Group means.			Year.
	I	I	II	II	III	III	III	III	II	II	I	I	I	II	III	
0-1	γ 0	+ 1	- 3	- 7	- 1	- 6	- 5	- 7	- 10	- 3	- 2	γ 0	γ 0	- 6	- 5	- 4
1-2	0	+ 3	- 1	- 5	- 1	- 7	- 6	- 7	- 8	- 2	- 2	+ 1	0	- 4	- 5	- 3
2-3	0	+ 3	+ 1	- 5	- 1	- 6	- 6	- 5	- 6	- 2	- 1	+ 1	0	- 3	- 4	- 2
3-4	- 2	+ 3	0	- 4	+ 1	- 5	- 5	- 5	- 5	- 2	- 2	0	0	- 2	- 4	- 2
4-5	- 2	+ 2	+ 2	- 3	+ 2	- 3	- 5	- 3	- 3	- 2	- 2	0	0	- 2	- 2	- 1
5-6	- 3	+ 1	+ 1	- 1	+ 3	- 2	- 5	- 2	- 1	- 2	- 2	- 2	- 1	- 2	- 2	- 1
6-7	- 3	- 2	+ 1	0	+ 3	- 2	- 4	- 2	- 1	- 2	- 2	- 2	- 2	0	- 1	- 1
7-8	- 3	- 3	0	0	+ 5	- 2	- 2	0	- 1	- 1	- 3	- 3	0	0	- 1	- 1
8-9	- 2	+ 1	+ 2	+ 4	+ 9	+ 3	+ 2	+ 5	+ 3	+ 2	- 1	- 1	+ 3	+ 4	+ 2	+ 2
9-10	- 1	+ 4	+ 3	+ 5	+ 12	+ 7	+ 3	+ 10	+ 7	+ 5	+ 1	- 2	0	+ 5	+ 8	+ 5
10-11	+ 2	+ 5	+ 4	+ 8	+ 22	+ 20	+ 14	+ 28	+ 20	+ 11	+ 1	- 2	+ 2	+ 11	+ 21	+ 11
11-12	+ 8	+ 6	+ 11	+ 16	+ 26	+ 35	+ 48	+ 34	+ 21	+ 7	- 3	+ 4	+ 20	+ 34	+ 20	+ 20
12-13	+ 26	+ 17	+ 20	+ 24	+ 21	+ 40	+ 32	+ 50	+ 40	+ 31	+ 16	+ 11	+ 18	+ 29	+ 36	+ 27
13-14	+ 44	+ 31	+ 24	+ 26	+ 7	+ 34	+ 26	+ 40	+ 32	+ 31	+ 24	+ 26	+ 31	+ 28	+ 27	+ 29
14-15	+ 35	+ 29	+ 21	+ 25	- 3	+ 21	+ 16	+ 20	+ 19	+ 21	+ 24	+ 33	+ 30	+ 22	+ 14	+ 22
15-16	+ 10	+ 14	+ 11	+ 18	- 11	+ 8	+ 5	- 3	+ 6	+ 6	+ 16	+ 29	+ 17	+ 10	0	+ 9
16-17	- 9	- 3	- 3	+ 4	- 17	- 6	- 4	- 22	- 6	- 6	- 6	+ 3	+ 1	- 3	- 12	- 5
17-18	- 19	- 15	- 17	- 12	- 20	- 17	- 9	- 32	- 16	- 14	- 6	- 7	- 12	- 15	- 20	- 15
18-19	- 25	- 21	- 24	- 24	- 20	- 26	- 20	- 35	- 23	- 19	- 13	- 21	- 20	- 22	- 25	- 23
19-20	- 23	- 26	- 21	- 26	- 17	- 30	- 23	- 32	- 22	- 20	- 16	- 26	- 23	- 22	- 26	- 24
20-21	- 14	- 22	- 13	- 20	- 8	- 24	- 16	- 20	- 18	- 18	- 15	- 21	- 18	- 17	- 17	- 17
21-22	- 8	- 14	- 8	- 10	- 4	- 15	- 9	- 8	- 17	- 15	- 12	- 11	- 11	- 13	- 9	- 11
22-23	- 6	- 7	- 5	- 7	- 2	- 9	- 3	- 7	- 14	- 11	- 8	- 7	- 7	- 9	- 5	- 7
23-24	- 5	- 5	- 7	- 8	- 4	- 7	- 5	- 9	- 14	- 8	- 6	- 6	- 6	- 9	- 6	- 7

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0-1	+ 1	- 2	- 6	- 5	- 6	- 8	- 6	- 6	- 6	- 6	+ 1	0	0	- 6	- 6	- 4
1-2	+ 2	- 2	- 3	- 3	- 4	- 9	- 6	- 6	- 4	- 2	+ 2	+ 1	+ 1	- 3	- 6	- 3
2-3	+ 2	- 2	- 2	0	- 2	- 6	- 3	- 5	- 3	- 2	+ 2	+ 2	+ 1	- 2	- 4	- 2
3-4	0	- 2	- 3	+ 2	- 3	- 5	- 3	- 5	- 4	- 2	+ 2	+ 1	0	- 2	- 4	- 2
4-5	0	- 1	- 1	0	- 2	- 4	- 2	- 4	- 4	- 1	- 1	- 1	- 1	- 1	- 3	- 2
5-6	- 1	- 2	- 2	0	0	- 3	0	- 3	- 4	- 1	- 1	- 1	- 1	- 2	- 2	- 1
6-7	- 2	- 2	- 1	0	- 1	- 2	0	0	- 1	0	- 1	- 1	- 2	- 1	- 1	- 1
7-8	- 4	- 2	- 2	0	0	- 2	+ 2	+ 1	- 2	+ 2	- 2	- 2	- 2	0	0	- 1
8-9	- 2	+ 2	0	+ 2	+ 7	+ 1	+ 7	+ 5	+ 2	+ 2	0	- 1	0	+ 2	+ 5	+ 2
9-10	0	+ 1	+ 2	+ 4	+ 11	+ 5	+ 10	+ 8	+ 5	+ 3	+ 1	+ 1	+ 1	+ 4	+ 8	+ 4
10-11	- 1	+ 1	+ 4	+ 12	+ 23	+ 13	+ 21	+ 22	+ 12	+ 6	+ 1	+ 1	+ 1	+ 8	+ 20	+ 10
11-12	- 1	+ 1	+ 8	+ 21	+ 38	+ 23	+ 30	+ 41	+ 23	+ 12	+ 3	+ 2	+ 1	+ 16	+ 33	+ 17
12-13	+ 14	+ 10	+ 17	+ 24	+ 38	+ 26	+ 30	+ 37	+ 29	+ 21	+ 15	+ 10	+ 12	+ 23	+ 33	+ 23
13-14	+ 30	+ 19	+ 23	+ 22	+ 24	+ 19	+ 21	+ 22	+ 24	+ 24	+ 20	+ 19	+ 22	+ 23	+ 22	+ 22
14-15	+ 36	+ 19	+ 23	+ 20	+ 7	+ 12	+ 12	+ 6	+ 18	+ 19	+ 19	+ 22	+ 24	+ 20	+ 9	+ 18
15-16	+ 34	+ 12	+ 14	+ 12	- 2	+ 7	0	- 9	+ 7	+ 13	+ 8	+ 12	+ 16	+ 12	- 1	+ 9
16-17	+ 13	+ 3	+ 4	- 2	- 16	- 1	- 12	- 17	- 5	+ 4	- 2	- 2	+ 3	0	- 12	- 3
17-18	- 15	- 4	- 7	- 19	- 26	- 7	- 18	- 24	- 14	- 4	- 8	- 10	- 9	- 11	- 19	- 13
18-19	- 30	- 9	- 14	- 28	- 30	- 11	- 20	- 23	- 16	- 13	- 14	- 17	- 18	- 18	- 21	- 19
19-20	- 33	- 9	- 15	- 27	- 24	- 14	- 20	- 18	- 16	- 18	- 13	- 16	- 18	- 19	- 19	- 19
20-21	- 24	- 8	- 12	- 17	- 13	- 9	- 16	- 8	- 14	- 18	- 10	- 11	- 13	- 15	- 12	- 13
21-22	- 12	- 10	- 10	- 8	- 8	- 7	- 10	- 4	- 10	- 17	- 9	- 6	- 9	- 11	- 7	- 9
22-23	- 5	- 8	- 8	- 6	- 6	- 8	- 8	- 4	- 8	- 14	- 7	- 2	- 6	- 9	- 6	- 7
23-24	- 2	- 6	- 9	- 5	- 6	- 9	- 8	- 5	- 8	- 9	- 2	- 1	- 3	- 8	- 7	- 6

## DIURNAL VARIATION.

25

*Diurnal variation of Z.*

[International quiet days (Greenwich mean time).]

1917.

Hour.	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Group means.			Year.
	I	I	II	II	III	III	III	II	II	I	I	I	I	II	III	
0-1	+ 2	+ 3	+ 2	+ 1	+ 1	+ 1	+ 4	+ 2	+ 4	+ 1	+ 1	+ 1	+ 2	+ 2	+ 2	+ 2
1-2	+ 3	+ 4	+ 3	0	0	+ 1	+ 3	+ 3	+ 2	+ 5	+ 1	0	+ 2	+ 2	+ 2	+ 2
2-3	+ 5	+ 6	+ 4	0	-2	0	+ 2	+ 3	+ 3	+ 6	+ 2	+ 2	+ 3	+ 3	+ 3	+ 3
3-4	+ 7	+ 5	+ 5	0	-2	+ 1	+ 1	+ 4	+ 4	+ 6	+ 2	+ 3	+ 4	+ 4	+ 4	+ 4
4-5	+ 6	+ 6	+ 4	+ 4	0	-3	+ 1	0	+ 2	+ 5	+ 6	+ 5	+ 4	+ 4	0	+ 3
5-6	+ 6	+ 4	+ 5	0	-3	+ 1	+ 1	+ 1	+ 6	+ 5	+ 2	+ 5	+ 4	+ 4	0	+ 3
6-7	+ 6	+ 5	+ 5	0	-2	+ 3	+ 1	+ 2	+ 7	+ 5	+ 3	+ 5	+ 5	+ 4	+ 1	+ 3
7-8	+ 7	+ 5	+ 5	0	-0	+ 4	+ 3	+ 2	+ 8	+ 5	+ 4	+ 6	+ 6	+ 5	+ 2	+ 4
8-9	+ 6	+ 4	+ 4	0	0	+ 4	+ 3	+ 3	+ 8	+ 5	+ 4	+ 5	+ 5	+ 4	+ 3	+ 4
9-10	+ 6	+ 4	+ 3	+ 1	+ 2	+ 4	+ 6	+ 4	+ 7	+ 5	+ 4	+ 5	+ 5	+ 4	+ 4	+ 4
10-11	+ 4	+ 4	+ 2	+ 2	+ 0	+ 2	+ 5	+ 3	+ 5	+ 4	+ 4	+ 5	+ 4	+ 3	+ 2	+ 3
11-12	+ 4	+ 5	+ 1	+ 2	0	-1	+ 2	-1	-3	+ 1	+ 3	+ 6	+ 4	0	0	+ 2
12-13	-1	-1	-1	0	+ 1	-5	-3	-5	-8	-6	-2	+ 0	-4	-3	-2	-2
13-14	-12	-5	-3	+ 1	+ 1	-6	-5	-6	-9	-8	-6	-4	-7	-5	-4	-5
14-15	-17	-8	-3	0	+ 2	-5	-6	-5	-9	-9	-10	-11	-5	-4	-7	-7
15-16	-13	-7	-3	-1	+ 1	-6	-7	-4	-8	-8	-12	-10	-5	-4	-6	-6
16-17	-12	-8	-7	-2	-1	-6	-7	-4	-8	-6	-12	-10	-6	-4	-7	-7
17-18	-10	-8	-6	-1	-1	-5	-6	-4	-5	-6	-10	-8	-4	-4	-6	-6
18-19	-5	-7	-4	+ 1	0	-1	-5	-1	-2	-5	-4	-6	-6	-2	-2	-3
19-20	0	-6	-2	+ 2	+ 3	+ 2	+ 1	-1	-3	-5	0	-2	-2	-1	+ 1	-1
20-21	0	-5	-5	-2	0	+ 3	+ 2	-2	-3	-5	0	-1	-4	+ 1	-1	-1
21-22	+ 1	-3	-5	-3	0	+ 3	+ 2	-2	-2	-2	+ 1	0	-3	+ 1	+ 1	-1
22-23	+ 3	+ 1	-4	-2	+ 1	+ 2	+ 2	0	+ 1	+ 1	+ 1	+ 2	-1	+ 1	+ 1	+ 1
23-24	+ 4	+ 4	-1	+ 1	+ 2	+ 2	+ 3	+ 2	+ 1	+ 1	+ 3	+ 3	+ 4	+ 1	+ 2	+ 2

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0-1	+ 2	+ 3	+ 3	+ 4	+ 4	+ 2	+ 1	+ 1	+ 3	+ 2	+ 4	+ 4	+ 3	+ 3	+ 2	+ 3
1-2	+ 4	+ 3	+ 4	+ 5	+ 2	+ 3	+ 0	0	+ 4	+ 5	+ 4	+ 3	+ 4	+ 4	+ 2	+ 3
2-3	+ 5	+ 2	+ 4	+ 3	+ 1	+ 2	+ 2	+ 2	+ 7	+ 5	+ 5	+ 4	+ 4	+ 1	+ 1	+ 3
3-4	+ 5	+ 3	+ 6	+ 6	+ 1	+ 1	+ 2	0	+ 1	+ 6	+ 7	+ 4	+ 5	+ 5	+ 1	+ 3
4-5	+ 6	+ 3	+ 6	+ 1	+ 1	+ 2	0	+ 2	+ 6	+ 7	+ 4	+ 5	+ 4	+ 5	+ 1	+ 3
5-6	+ 6	+ 4	+ 6	+ 2	+ 1	+ 1	+ 2	0	+ 2	+ 6	+ 7	+ 3	+ 5	+ 5	+ 1	+ 4
6-7	+ 6	+ 6	+ 6	+ 2	+ 4	+ 4	+ 1	+ 1	+ 3	+ 4	+ 6	+ 5	+ 5	+ 4	+ 2	+ 4
7-8	+ 6	+ 7	+ 8	+ 3	+ 3	+ 5	+ 2	+ 2	+ 4	+ 3	+ 6	+ 3	+ 6	+ 5	+ 3	+ 5
8-9	+ 6	+ 7	+ 6	+ 3	+ 4	+ 3	+ 0	+ 2	+ 4	+ 3	+ 4	+ 3	+ 6	+ 6	+ 2	+ 4
9-10	+ 5	+ 6	+ 5	+ 3	+ 4	+ 4	-2	+ 3	+ 5	+ 2	+ 4	+ 4	+ 5	+ 3	+ 2	+ 4
10-11	+ 5	+ 5	+ 4	+ 3	+ 2	-3	+ 2	+ 3	+ 3	+ 1	+ 2	+ 5	+ 6	+ 5	+ 2	+ 3
11-12	+ 6	+ 6	+ 2	-1	-4	-5	-1	-2	-5	-2	-1	+ 3	+ 6	+ 5	0	-4
12-13	+ 3	0	-3	-8	-8	-4	-8	-10	-4	-5	-1	+ 2	+ 1	-3	-8	-3
13-14	-4	-4	-3	-2	-9	-2	-8	-8	-4	-6	-4	-4	-4	-7	-5	-5
14-15	-11	-8	-5	-5	-9	0	-5	-6	-6	-6	-8	-11	-9	-6	-5	-7
15-16	-15	-11	-7	-7	-9	-1	-3	-5	-7	-5	-7	-12	-11	-7	-4	-7
16-17	-17	-11	-11	-6	-7	-1	0	-2	-7	-6	-6	-13	-12	-8	-3	-7
17-18	-13	-10	-11	-3	-2	-2	0	+ 1	-4	-7	-6	-12	-10	-6	-1	-6
18-19	-7	-9	-9	-3	+ 2	+ 1	+ 1	+ 3	-2	-7	-4	-10	-7	-5	+ 2	-4
19-20	-3	-7	-6	-1	+ 3	+ 3	+ 3	+ 3	-1	-5	-3	-7	-5	-3	+ 3	-2
20-21	-1	-3	-5	0	+ 3	+ 3	+ 3	+ 2	-1	-3	-3	-2	-2	-2	+ 3	-1
21-22	0	0	-3	-1	+ 3	0	+ 2	+ 2	-1	-1	0	+ 1	0	-2	+ 2	-1
22-23	+ 1	+ 2	0	0	+ 5	-1	+ 2	+ 1	0	-1	0	+ 2	+ 1	0	+ 2	+ 1
23-24	+ 2	+ 3	+ 2	+ 4	+ 5	-0	+ 2	+ 1	+ 1	0	+ 1	+ 3	+ 2	+ 2	+ 2	+ 2

*Summary of monthly means.*

1917.

Month.	<i>D</i>	<i>H</i>	<i>I</i>	<i>X</i>	<i>Y</i>	<i>Z</i>	<i>F</i>
January.....	°   '	γ	°   '	γ	γ	γ	γ
February.....	-3 23.7	28095	50 59.7	28046	-1664	34689	44640
March.....	24.4	085	60.5	035	669	692	635
April.....	25.0	089	60.3	039	674	693	639
May.....	25.7	084	61.0	034	679	701	642
June.....	26.7	081	61.6	030	687	710	647
July.....	26.5	078	62.1	028	686	718	651
August.....	26.9	068	63.1	017	688	725	650
September.....	27.6	050	64.2	27999	693	726	640
October.....	28.3	052	64.1	28000	699	726	641
November.....	29.1	043	64.6	27991	705	725	634
December.....	29.7	040	64.9	27988	709	727	634
Mean.....	30.4	021	66.6	27969	714	739	631
	-3 27.0	28066	51 02.7	28015	-1689	34714	44640

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January.....	-3 31.1	28025	51 07.3	27972	-1720	34760	44651
February.....	31.8	017	08.3	964	725	770	653
March.....	32.0	009	08.9	956	725	771	649
April.....	32.7	001	09.4	947	731	771	644
May.....	33.3	27998	09.4	944	736	769	641
June.....	33.6	28002	09.6	948	739	778	650
July.....	34.4	004	09.8	949	745	784	656
August.....	34.9	27976	11.8	922	748	792	645
September.....	35.5	954	13.2	899	751	793	631
October.....	36.1	952	13.5	897	756	798	634
November.....	36.2	952	13.8	897	757	803	639
December.....	36.9	934	15.2	879	761	808	630
Mean.....	-3 34.0	27985	51 10.9	27931	-1741	34783	44644

*Summary of annual means.*

Year.	<i>D</i>	<i>H</i>	<i>I</i>	<i>X</i>	<i>Y</i>	<i>Z</i>	<i>F</i>
1903.....	°   '	γ	°   '	γ	γ	γ	γ
1904.....	-1 23.2	29336	49 10.0	29327	-709	33946	44865
1905.....	1 31.0	266	15.0	256	775	965	834
1906.....	1 38.3	221	17.0	209	835	952	795
1907.....	1 45.9	173	22.1	159	899	999	799
1908.....	1 53.7	106	29.3	090	962	34066	806
1909.....	2 02.5	29021	36.3	003	1034	106	782
1910.....	2 11.7	28927	44.1	28905	1107	151	755
1911.....	2 20.6	834	52.0	810	1179	202	734
1912.....	2 29.9	739	50 00.4	712	1253	258	716
1913.....	2 39.0	638	09.0	607	1325	312	692
1914.....	2 49.6	522	21.2	487	1407	421	702
1915.....	3 00.4	401	33.9	362	1489	533	712
1916.....	3 10.1	279	45.9	236	1563	630	710
1917.....	3 19.2	158	50 55.5	111	1630	680	672
1918.....	3 27.0	28066	51 02.7	28015	1689	714	640
	-3 34.0	27985	51 10.9	27931	-1741	783	644



## PORTO RICO MAGNETIC OBSERVATORY.

MARCH, 1917.

3° WEST PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	24.7	24.8	24.7	24.9	25.4	25.3	24.6	24.2	22.6	22.0	21.9	22.6	23.8	25.6	26.2
2*	24.7	24.7	24.7	24.8	24.7	24.8	25.1	25.6	24.0	22.8	22.8	24.5	24.8	26.2	26.9
3*	24.7	24.8	24.8	24.8	24.6	24.5	24.3	23.8	22.4	22.6	23.6	24.7	25.9	26.2	25.9
4	24.8	24.9	24.9	24.9	24.6	24.2	24.0	23.4	21.6	20.4	21.4	23.7	24.8	25.7	26.9
5	24.8	24.3	24.3	24.6	23.5	24.7	23.8	23.3	22.0	21.3	22.6	23.5	24.2	25.9	26.1
6	24.7	24.8	25.4	25.5	24.3	23.8	24.5	23.8	22.0	22.4	23.3	24.3	24.7	25.5	25.9
7	24.4	24.5	24.7	24.6	23.9	23.7	23.5	23.1	22.8	23.3	24.6	25.9	26.8	26.9	27.0
8	24.8	24.7	24.3	25.0	23.8	23.8	23.8	22.5	21.8	22.1	24.3	26.7	26.1	25.6	25.2
9	23.8	24.1	24.3	24.5	23.8	23.2	23.2	22.9	22.0	22.0	23.4	24.8	25.7	25.9	25.6
10*	24.9	24.9	23.9	24.0	23.4	23.0	22.8	22.3	21.4	22.0	23.5	24.9	25.4	26.4	26.7
11	24.2	25.0	25.1	25.2	24.6	24.3	23.6	22.7	21.8	21.7	23.0	24.7	25.4	26.3	27.0
12	24.9	24.7	24.5	23.9	23.7	23.2	23.6	22.9	21.9	21.6	21.9	23.7	25.7	27.6	28.9
13	24.7	24.7	24.2	23.9	23.5	22.5	24.3	24.7	23.3	21.4	21.8	22.9	23.9	25.9	28.0
14*	24.5	24.9	25.0	25.0	24.6	24.4	24.7	24.8	23.5	22.1	22.1	22.9	24.0	25.9	27.1
15	24.9	25.1	25.0	25.1	24.8	24.9	24.3	23.7	21.9	21.1	22.6	24.1	26.0	27.6	28.0
16*	25.1	25.1	25.1	25.4	24.9	24.8	24.1	22.8	20.9	21.2	21.6	22.9	24.6	26.0	27.1
17	25.0	24.9	24.8	24.9	24.7	24.4	24.5	24.1	25.0	25.1	25.2	25.2	25.1	26.2	27.4
18	25.2	24.9	24.6	24.8	24.0	23.8	23.3	21.9	21.0	20.9	21.6	22.9	22.7	24.0	25.2
19*	24.8	24.6	24.7	24.8	24.2	23.9	23.6	22.9	21.9	21.9	22.0	22.1	24.7	26.3	27.0
20	25.0	24.9	24.7	24.6	23.8	23.5	23.0	23.7	22.4	21.8	22.9	24.5	26.0	27.0	27.5
21	24.9	24.9*	24.8	24.8	24.1	24.2	23.9	21.9	20.9	21.2	21.7	22.8	23.5	24.6	24.9
22	25.2	24.9	24.8	24.8	24.8	24.8	24.0	22.8	21.5	22.6	24.5	25.5	26.0	26.8	28.4
23	25.2	25.2	25.0	25.7	25.4	24.6	24.2	23.0	20.9	21.0	21.5	23.0	25.6	28.0	29.2
24	24.9	25.0	25.2	25.4	25.9	24.8	24.3	22.4	20.0	19.8	20.8	23.6	26.9	28.9	29.3
25	25.3	25.9	25.5	25.9	26.5	24.9	23.9	21.8	19.1	18.8	19.0	21.0	25.1	29.0	30.6
26	25.2	25.8	25.9	25.9	25.4	25.3	25.0	22.9	25.4	19.2	19.2	21.0	23.9	27.1	29.0
27	24.9	25.1	25.1	25.3	25.1	24.9	24.7	23.0	21.6	20.9	19.9	21.6	24.3	28.0	30.2
28*	24.9	25.0	25.1	25.3	25.0	24.8	24.5	22.9	21.4	20.8	21.0	22.4	23.7	25.9	27.9
29*	24.9	24.9	25.0	25.0	24.8	24.9	24.6	23.4	22.7	21.9	22.0	23.1	26.9	29.7	30.3
30*	25.1	25.1	24.9	24.9	24.7	24.6	24.0	22.8	22.0	21.8	22.1	22.8	24.8	26.9	27.9
31*	25.0	25.0	24.9	24.9	24.9	24.8	24.1	22.8	21.5	20.6	20.1	22.7	24.8	27.0	28.7
Mean...	24.8	24.9	24.8	24.9	24.6	24.3	24.1	23.2	22.0	21.6	22.2	23.6	25.1	26.6	27.5
Mean*...	24.9	24.9	24.8	24.9	24.6	24.4	24.2	23.4	22.2	21.8	22.1	23.3	25.0	26.6	27.6
Mean†...	24.9	24.9	24.9	25.0	24.8	24.7	24.5	23.7	22.5	22.0	22.3	23.5	25.2	27.0	27.8

APRIL, 1917.

3° WEST PLUS TABULAR QUANTITIES.

1	24.7	24.5	24.4	24.2	23.9	23.7	23.3	22.4	20.7	20.5	21.2	23.1	24.6	25.9	26.8
2	24.5	24.7	24.2	24.7	24.7	24.6	23.9	22.7	21.3	20.5	20.8	22.7	24.8	27.1	27.9
3	24.3	24.9	25.8	25.1	24.5	24.0	23.9	22.7	22.3	23.1	24.7	25.0	26.8	28.3	28.6
4	24.8	24.6	24.5	25.2	24.6	24.4	24.0	22.0	21.9	22.3	22.7	24.1	25.8	27.1	28.1
5	25.2	25.3	25.3	25.6	25.6	24.8	23.9	24.3	24.4	23.6	23.5	25.4	25.1	26.6	28.1
6	24.0	26.0	24.0	24.3	24.1	24.7	24.7	22.2	21.7	21.7	22.7	24.8	27.6	29.5	29.8
7	25.6	25.5	25.8	25.8	25.8	24.8	24.8	24.7	22.2	22.6	24.2	26.4	28.0	29.2	29.7
8	24.8	24.7	24.7	24.8	24.4	24.2	22.9	21.9	22.0	22.8	23.7	24.8	26.6	27.6	28.5
9	24.6	24.7	24.7	24.7	23.8	24.5	27.3	26.4	26.3	24.2	23.7	23.6	25.0	27.7	29.6
10†	25.9	25.8	25.5	25.4	24.8	24.8	24.2	22.7	21.3	20.6	21.2	23.7	26.5	28.1	28.1
11*	25.8	25.5	25.4	25.5	24.9	24.8	24.5	22.9	21.2	20.7	20.5	21.7	24.4	27.0	28.8
12*	25.8	25.6	25.5	25.6	25.0	24.7	24.5	23.3	22.8	21.9	22.1	23.7	25.9	28.3	29.4
13*	25.5	25.5	25.2	25.2	24.3	23.9	23.5	22.3	21.5	21.4	21.6	22.7	24.7	26.4	27.9
14*	25.5	25.5	25.3	25.3	24.9	25.1	25.2	24.7	24.5	24.2	23.3	23.0	23.1	24.3	26.3
15	25.3	24.9	24.6	24.1	23.8	24.5	25.6	25.3	25.3	24.7	24.9	25.9	26.8	27.8	
16	24.1	24.6	25.6	24.9	24.7	24.6	22.9	23.2	23.6	23.2	23.2	25.2	25.6	26.8	27.9
17	25.5	24.7	24.7	24.6	24.0	23.7	23.5	23.3	23.0	23.1	23.3	24.6	26.8	29.3	30.0
18*	25.2	25.1	24.9	25.0	24.8	24.9	24.2	23.6	23.6	23.8	23.5	24.2	26.4	28.0	28.6
19*	25.8	26.2	26.1	26.1	25.5	25.2	24.3	23.5	23.7	24.8	25.8	26.8	27.8	28.2	28.0
20†	26.3	26.2	26.0	25.8	25.3	25.2	24.6	23.2	22.7	23.0	23.9	25.8	27.8	29.9	30.7
21	25.9	26.0	25.9	25.9	25.8	25.1	23.7	21.7	21.0	21.8	22.9	25.0	26.9	29.3	30.1
22	26.0	25.8	25.8	25.8	25.5	24.9	24.5	23.4	23.5	24.6	26.2	28.3	30.1	31.2	31.0
23	26.0	25.8	25.9	25.9	25.9	24.9	23.9	23.4	21.7	22.3	23.4	24.6	26.8	29.7	30.7
24*	25.8	25.8	25.6	25.6	25.4	25.1	24.3	22.8	22.6	22.8	23.7	25.1	26.9	29.4	29.8
25	25.9	25.7	25.8	25.8	25.2	25.0	24.7	23.7	22.7	22.6	24.6	26.8	29.0	30.2	
26	25.4	24.8	24.9	25.2	24.5	23.9	23.5	22.7	20.9	23.4	24.8	26.0	27.0	28.1	29.3
27†	26.0	25.8	26.0	25.9	25.3	24.9	24.8	24.2	23.3	23.3	23.9	24.7	25.8	26.9	28.3
28*	26.0	25.6	25.9	25.9	25.6	24.8	24.6	23.3	22.9	23.8	24.9	25.9	26.8	28.0	29.0
29	25.6	25.0	25.0	25.6	24.8	26.2	24.8	24.7	22.5	22.6	23.5	24.8	26.4	27.3	27.9
30	24.9	24.7	25.1	24.9	23.7	23.8	22.8	21.7	22.5	23.2	24.8	26.8	27.4	28.8	29.8
Mean...	25.4	25.3	25.3	25.2	24.8	24.7	24.2	23.3	22.6	22.8	23.3	24.7	26.3	28.0	28.9
Mean*...	25.8	25.7	25.6	25.6	25.1	24.9	24.4	23.4	22.9	23.0	23.3	24.4	26.0	27.6	28.7
Mean†...	26.0	25.8	25.6	25.6	25.0	25.0	24.7	23.5	22.6	22.4	22.3	23.3	25.0	26.9	28.4

\* Ten least disturbed days.

† Five international quiet days.

## HOURLY VALUES OF DECLINATION.

31

MARCH, 1917.

3° WEST PLUS TABULAR QUANTITIES.

15h-16h	16h-17h	17h-18h	18h-19h	19h-20h	20h-21h	21h-22h	22h-23h	23h-24h	Mean.	Maximum.	Minimum.	Range.	Day.
26.2	25.9	25.6	25.5	25.4	24.8	24.5	24.6	24.8	24.6	14 47	26.3	10 22	4.5 1
26.4	25.6	25.5	25.5	25.5	25.0	24.8	24.9	24.9	25.0	14 30	27.0	9 39	22.6 4.4 2
24.8	24.2	24.6	24.9	25.4	24.8	24.6	24.8	24.9	24.6	13 53	26.3	9 10	21.8 4.5 3
28.2	29.0	28.5	27.2	26.5	25.6	24.8	24.8	24.8	25.0	16 54	29.8	9 03	19.8 10.0 4
26.1	25.5	25.6	25.8	25.7	25.3	24.8	24.4	24.7	24.4	14 49	26.8	9 12	19.8 7.0 5
25.9	25.5	25.7	25.9	25.9	25.0	24.7	24.7	25.2	24.7	18 30	26.0	8 56	21.7 4.3 6
26.9	26.4	26.1	26.1	26.2	25.4	24.1	24.0	24.8	25.0	13 58	27.2	7 32	22.6 4.6 7
25.9	26.6	27.1	27.0	26.5	25.0	24.9	24.8	24.4	24.9	17 50	27.7	7 58	20.9 6.8 8
25.3	24.9	25.5	25.9	25.9	25.3	25.1	25.0	25.0	24.5	18 35	26.1	9 26	21.8 4.3 9
26.3	26.0	26.1	26.0	26.0	25.1	24.8	24.8	24.7	24.6	14 06	27.1	8 20	20.9 6.2 10
27.3	26.4	25.9	25.9	26.0	25.0	24.9	24.8	24.9	24.8	15 40	27.4	8 37	20.8 6.6 11
29.0	27.9	27.1	27.5	27.0	25.9	24.9	24.8	24.8	25.1	15 00	29.3	9 40	20.8 8.5 12
28.5	27.9	27.0	25.9	26.0	25.4	25.0	24.7	24.4	24.8	15 00	28.8	9 41	20.7 8.1 13
27.4	27.2	26.7	26.3	25.9	25.4	25.3	25.1	25.1	25.0	15 30	27.5	9 39	21.8 5.7 14
27.9	27.9	27.5	26.5	26.0	25.3	25.3	25.2	25.5	25.3	13 50	28.7	9 10	20.8 7.9 15
27.4	27.0	27.5	26.9	26.5	25.7	25.1	25.1	25.1	24.9	14 50	27.7	8 42	20.6 7.1 16
27.6	27.0	26.9	26.4	26.0	25.0	24.9	24.8	24.9	25.4	15 08	28.0	6 10	23.8 4.2 17
28.0	28.0	27.8	26.9	26.7	26.0	25.4	25.2	25.1	24.6	15 39	28.2	9 40	20.8 7.4 18
27.0	27.2	27.0	26.9	27.0	26.9	25.7	25.7	25.5	24.9	19 47	27.3	9 00	21.8 5.5 19
27.6	27.2	27.0	25.5	25.9	25.7	25.1	24.5	24.9	24.9	15 53	27.7	9 11	21.3 6.4 20
25.4	25.5	25.9	26.0	26.1	26.1	25.5	25.3	25.3	24.3	19 42	26.3	8 53	20.7 5.6 21
28.0	26.9	26.1	25.9	26.0	25.4	25.2	25.4	25.4	25.3	14 35	28.8	8 42	21.2 7.6 22
28.6	26.7	25.5	25.6	25.9	25.1	25.0	25.1	25.4	25.0	14 37	29.8	8 51	20.6 9.2 23
28.6	27.0	25.6	25.5	25.9	25.5	25.3	25.3	25.6	25.1	14 07	29.6	8 55	19.6 10.0 24
30.7	29.0	27.0	26.0	26.0	25.5	24.9	24.9	25.2	25.1	15 05	30.9	8 51	17.9 13.0 25
28.9	28.1	27.0	26.4	26.0	25.6	25.4	25.3	24.9	25.1	14 36	29.1	9 54	18.3 10.8 26
30.0	28.1	26.2	25.5	25.7	25.4	25.2	25.0	24.9	25.0	14 29	30.6	10 40	19.6 11.0 27
28.4	27.5	26.7	26.0	26.2	26.0	25.9	25.3	25.5	24.9	15 10	28.6	8 38	20.6 8.0 28
30.0	28.7	26.9	26.2	26.1	25.9	25.9	25.4	25.5	25.6	14 35	30.5	10 03	21.7 8.8 29
27.9	27.1	26.4	26.1	26.5	26.1	26.0	25.7	25.6	25.1	15 00	28.0	9 15	21.8 6.2 30
29.0	28.6	27.4	26.9	26.4	26.3	25.9	25.6	25.4	25.1	15 05	29.4	10 25	19.8 9.6 31
27.6	27.0	26.5	26.1	26.1	25.5	25.1	25.0	25.1	24.9				7.2
27.5	26.9	26.5	26.2	26.2	25.7	25.4	25.2	25.2	25.0				6.6
27.5	26.6	26.0	25.7	25.8	25.4	25.3	25.0	25.1	25.0				

APRIL, 1917.

3° WEST PLUS TABULAR QUANTITIES.

26.7	26.1	25.7	25.8	26.1	25.2	25.1	24.8	25.7	24.4	14 50	23.9	8 48	20.0 6.9 1
27.8	27.2	26.8	26.9	26.8	26.7	25.8	25.2	24.5	24.9	14 52	28.0	9 39	20.0 8.0 2
28.6	28.2	26.3	26.5	26.6	26.0	25.9	25.3	25.3	25.5	15 37	28.8	7 49	21.9 6.9 3
27.7	26.8	26.1	25.9	26.1	25.9	26.0	25.8	24.8	25.0	15 30	28.2	7 30	21.7 6.5 4
28.5	28.1	27.8	27.0	26.8	25.8	24.7	24.2	25.4	25.6	14 58	29.0	6 50	22.9 6.1 5
28.9	27.8	26.5	26.3	26.2	25.9	25.8	25.8	25.8	25.4	14 27	30.2	7 55	21.4 8.8 6
29.7	27.9	26.7	26.7	26.6	26.5	25.8	25.8	24.9	26.0	13 00	30.0	9 00	21.9 8.1 7
28.3	28.4	26.5	26.5	26.8	25.8	25.8	24.8	24.2	25.2	15 00	28.5	7 40	21.3 7.2 8
28.7	27.1	25.9	25.9	26.3	26.0	25.8	25.8	25.8	26.0	13 20	29.8	9 37	22.2 7.6 9
28.4	27.8	26.6	26.3	26.7	26.5	25.8	25.8	25.8	25.0	15 00	28.5	10 34	19.6 8.9 10
28.7	27.6	25.9	25.8	26.3	25.8	25.8	25.8	25.9	25.0	15 00	29.0	10 18	20.2 8.8 11
29.8	29.0	27.1	26.8	26.5	25.9	25.5	25.6	25.6	25.7	15 30	29.9	10 00	21.7 8.2 12
28.7	28.0	27.1	26.7	26.7	26.4	26.1	25.8	25.8	25.1	15 40	28.8	10 00	21.3 7.5 13
27.6	27.3	26.8	26.6	26.6	26.5	26.2	25.9	25.8	25.4	15 50	27.8	11 22	22.7 5.1 14
27.6	26.8	25.6	25.6	26.5	25.9	25.5	25.4	25.2	25.5	15 50	27.8	2 36	23.7 4.1 15
28.0	27.0	26.3	26.4	26.8	26.7	26.3	25.5	25.3	25.4	15 08	28.4	6 27	22.6 5.8 16
29.9	29.1	28.2	28.2	26.8	26.4	26.0	25.8	25.8	25.8	14 17	30.2	7 33	22.9 7.3 17
27.8	26.6	25.7	25.3	25.4	26.3	26.4	26.4	26.2	25.5	14 13	28.8	7 32	22.8 6.0 18
27.4	26.3	25.6	26.2	26.8	26.7	26.6	26.7	26.1	26.1	13 20	28.4	8 38	23.2 5.2 19
30.1	28.1	26.8	26.4	26.3	25.9	26.0	26.2	26.1	26.2	14 10	30.9	8 06	22.7 8.2 20
29.8	27.9	26.8	26.4	26.7	26.5	26.4	26.2	26.4	25.8	14 30	30.3	8 20	21.0 9.3 21
30.6	28.6	26.8	25.8	25.6	25.0	25.0	25.6	25.9	26.5	13 56	31.5	7 10	22.7 8.8 22
30.6	29.4	27.8	26.8	26.4	26.4	25.8	25.6	25.3	26.0	15 50	30.9	8 10	21.1 9.8 23
29.6	28.4	27.3	26.9	26.9	26.8	26.4	25.9	25.9	26.0	14 20	29.9	7 54	22.1 7.8 24
30.8	29.9	28.8	27.5	27.4	27.1	27.0	26.8	26.6	26.3	15 25	31.0	8 42	21.7 9.3 25
29.8	28.2	27.0	26.8	26.9	26.8	26.7	26.5	26.4	25.8	15 03	30.2	8 07	20.1 10.1 25
29.0	28.8	27.6	27.0	26.9	26.5	26.2	26.3	26.3	26.0	15 30	29.1	8 33	22.9 6.2 27
28.9	28.0	26.9	26.8	26.5	26.4	26.3	26.3	26.1	26.1	15 00	29.2	8 15	22.7 6.5 28
27.9	26.8	26.0	26.5	26.8	26.8	26.6	26.3	25.8	25.6	15 00	28.1	9 03	22.3 5.8 29
29.7	28.6	27.7	27.2	27.7	27.7	27.1	26.5	26.5	26.0	15 20	30.0	7 38	21.3 8.7 30
28.9	27.9	26.8	26.5	26.6	26.3	26.0	25.8	25.7	25.6				7.4
28.8	27.8	26.7	26.4	26.5	26.3	26.2	26.1	26.1	25.7				7.0
28.8	27.9	26.7	26.4	26.7	26.5	26.2	26.1	26.1	25.6				

## PORTO RICO MAGNETIC OBSERVATORY.

MAY, 1917.

3° WEST PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	26.2	25.4	25.8	25.8	24.7	24.5	22.8	21.8	22.1	23.7	24.6	25.9	28.0	30.1	31.9
2	26.4	24.9	26.4	26.4	24.6	23.5	23.3	24.1	23.3	24.2	25.4	26.3	29.0	29.7	29.6
3	25.6	27.6	25.6	25.6	26.1	26.2	23.6	22.5	23.9	21.7	23.9	25.6	27.6	29.1	29.4
4	25.7	26.1	25.9	25.8	25.6	25.5	24.7	24.3	23.9	24.1	24.7	25.4	26.5	25.9	26.5
5	26.3	25.8	27.3	26.5	26.2	26.2	25.0	24.7	24.8	24.8	25.8	27.3	28.3	29.7	29.6
6*†	26.6	26.4	26.3	26.2	25.9	25.6	24.9	25.8	26.3	26.9	27.2	27.8	29.3	30.0	29.8
7*†	26.3	25.9	26.0	25.5	25.3	23.9	22.7	21.9	23.0	25.1	26.7	27.7	29.1	29.4	28.8
8*†	26.6	26.6	27.5	26.5	25.7	25.0	23.8	22.4	24.5	26.2	27.5	28.1	28.4	28.6	28.7
9*†	26.5	26.5	26.3	26.4	24.7	23.3	22.8	23.9	26.0	27.2	27.9	29.0	28.2	29.3	29.1
10	26.7	26.4	25.2	26.3	25.8	26.4	23.8	22.2	21.1	21.6	22.7	24.0	25.4	26.8	28.4
11*	25.9	25.9	25.9	26.0	25.4	24.8	23.8	23.2	23.7	24.7	26.2	27.6	28.7	28.8	30.5
12	26.2	26.0	25.9	25.9	25.7	25.6	25.1	24.7	23.7	23.8	24.8	26.3	27.4	27.6	28.0
13†	25.9	25.8	25.4	25.3	25.4	25.2	24.7	23.7	22.2	22.6	23.6	24.8	25.8	26.9	27.3
14	26.1	25.9	25.6	25.6	25.6	25.2	24.6	24.6	24.9	25.9	26.7	27.7	28.6	29.4	29.8
15	26.5	26.5	26.4	26.5	25.7	25.6	25.2	24.7	24.7	25.1	26.2	26.8	27.0	27.9	28.4
16	26.3	26.2	26.6	24.6	24.6	25.0	25.6	24.9	25.1	25.1	26.8	27.6	27.6	27.7	27.3
17	26.3	26.1	26.0	25.7	25.0	26.3	24.3	24.5	25.6	26.8	28.7	30.3	30.6	30.8	30.7
18	26.6	26.6	26.3	26.2	25.2	24.8	23.9	23.4	24.0	26.0	28.1	29.8	30.4	31.0	30.1
19*†	26.6	26.5	26.5	26.5	25.6	25.2	23.5	22.8	24.6	27.3	29.3	30.4	30.0	29.8	29.8
20*†	26.6	26.6	25.4	26.1	25.4	24.7	23.7	22.7	23.0	25.2	27.0	28.3	29.3	30.2	30.4
21	26.7	26.5	26.3	26.3	25.1	24.8	24.5	23.5	22.8	24.3	26.4	27.7	29.3	30.1	30.4
22	26.6	26.6	26.6	26.6	25.9	25.4	24.3	22.5	20.7	22.5	24.5	25.9	27.8	30.5	30.8
23*	26.7	26.6	27.3	26.3	25.5	24.8	23.3	21.5	22.3	24.6	26.2	27.1	28.5	29.9	30.5
24*	26.6	26.6	26.5	26.3	25.8	25.3	23.3	22.5	22.7	23.8	25.8	27.5	28.7	29.5	29.7
25	26.6	26.5	26.4	26.4	25.8	24.9	23.3	22.7	23.3	25.1	27.3	28.6	29.1	29.3	29.6
Mean.....	26.4	26.3	26.3	26.1	25.7	25.3	24.2	23.5	23.6	24.6	25.9	27.2	28.2	28.9	29.3
Mean*....	26.6	26.4	26.6	26.2	25.7	24.8	23.6	23.0	24.0	25.6	27.0	28.1	28.9	29.4	29.6
Mean†....	26.5	26.4	26.4	26.1	25.6	25.1	24.1	23.5	24.1	25.6	26.9	27.9	28.6	29.1	29.2

JUNE, 1917.

3° WEST PLUS TABULAR QUANTITIES.

1*†	26.7	26.6	26.7	26.8	26.3	25.6	24.4	22.4	21.9	23.0	26.3	27.2	29.2	29.7	30.4
2*†	26.5	26.4	26.6	26.3	26.0	25.3	24.3	23.3	23.2	24.3	25.4	26.6	27.3	27.8	28.6
3	26.7	26.4	26.1	25.8	25.3	24.6	23.3	22.0	21.5	23.0	25.3	27.8	29.6	31.1	31.4
4	26.2	26.2	26.9	26.9	25.7	24.6	22.7	21.8	22.4	24.7	26.5	28.4	29.6	30.4	30.8
5*†	27.2	26.9	26.7	26.5	26.0	25.3	24.3	22.4	21.5	23.4	25.3	26.6	27.8	29.6	29.5
6	27.0	26.9	26.7	26.6	26.0	25.3	23.7	21.3	19.4	20.3	22.6	25.6	28.4	30.4	31.2
7	27.0	26.9	26.5	26.4	26.0	25.6	24.4	24.3	22.3	22.8	24.4	26.5	28.1	29.7	30.1
8	27.0	26.8	27.3	27.4	28.5	28.1	25.2	24.1	23.1	24.0	26.0	27.4	27.8	28.4	28.2
9	26.2	26.4	27.2	25.8	26.2	25.4	23.2	20.9	20.9	22.7	25.0	27.1	28.4	29.7	30.1
10	27.2	26.8	26.7	26.4	25.3	25.3	24.2	22.2	21.4	21.9	22.5	24.4	27.1	28.9	29.3
11	26.0	25.8	26.2	26.2	25.9	25.3	23.6	22.1	21.3	22.0	24.0	26.3	28.3	29.3	29.3
12	25.8	26.9	26.9	26.8	26.7	26.5	25.6	23.2	21.9	22.2	23.3	24.8	26.2	27.9	29.4
13	27.5	27.2	26.2	26.5	25.7	24.9	24.1	22.5	21.7	22.7	24.2	25.1	26.5	26.7	27.3
14	26.4	26.2	26.3	26.2	25.2	24.6	23.3	21.7	21.7	24.1	24.8	27.2	29.3	30.3	30.4
15	27.2	27.2	27.8	27.5	27.6	26.8	24.4	22.6	22.5	23.2	24.3	25.7	26.4	28.1	29.6
16	26.6	26.1	26.2	26.2	25.8	25.8	24.3	22.4	21.4	21.6	22.9	24.7	26.2	27.4	29.0
17*†	28.2	27.1	26.6	27.1	26.6	26.1	24.4	22.6	22.1	22.3	23.2	24.5	25.2	26.1	27.4
18*	26.7	26.6	26.4	26.5	26.6	26.1	25.2	24.1	23.4	24.6	25.4	26.0	27.1	28.7	29.0
19*†	27.2	27.1	26.8	26.7	26.1	25.7	23.9	21.9	20.8	20.7	21.7	23.8	26.2	29.1	30.2
20*†	27.1	27.1	27.1	27.1	26.6	26.1	24.1	22.1	21.8	22.3	23.8	25.1	26.1	27.0	29.2
21*	27.1	27.0	26.9	27.0	26.5	26.2	24.9	23.0	21.6	21.3	21.8	22.3	24.1	26.7	29.3
22	27.0	27.1	27.1	26.4	26.1	25.5	24.1	23.1	23.6	24.6	24.6	24.9	25.1	26.4	28.3
23	26.1	26.0	25.8	25.8	24.6	24.2	23.6	22.6	21.2	20.4	21.3	24.5	25.5	26.7	29.9
24	25.5	25.1	25.3	26.7	26.0	25.7	23.9	22.1	21.4	20.6	21.1	25.5	26.5	28.5	29.9
25	26.6	25.8	26.4	26.3	25.0	24.4	23.3	22.2	20.2	19.7	20.6	22.9	25.0	27.9	30.1
26*	27.0	27.2	27.4	27.0	26.2	25.9	25.0	24.0	23.0	22.2	22.7	23.9	25.5	27.0	28.8
27	26.9	26.7	27.1	27.0	26.7	26.0	25.0	23.8	23.0	22.9	23.2	24.8	26.3	27.3	28.3
28	25.9	25.7	25.6	26.0	26.2	26.0	25.0	23.8	23.0	24.0	24.7	25.9	27.6	29.8	31.1
29	25.9	25.7	25.5	25.5	25.6	25.1	24.0	22.8	22.2	23.1	25.0	27.4	30.5	32.0	32.2
30*†	26.8	26.8	26.7	26.7	26.1	25.6	24.0	21.9	20.4	21.0	22.3	24.2	26.7	28.8	30.2
Mean.....	26.7	26.6	26.6	26.5	26.1	25.6	24.2	22.6	21.9	22.5	23.8	25.6	27.2	28.6	29.6
Mean*....	27.0	26.9	26.8	26.8	26.3	25.8	24.4	22.8	22.0	22.5	23.8	25.0	26.5	28.0	29.3
Mean†....	26.9	26.8	26.8	26.7	26.2	25.7	24.1	22.3	21.6	22.3	23.9	25.4	27.1	28.5	29.7

\* Ten least disturbed days.

† Five international quiet days.

## HOURLY VALUES OF DECLINATION.

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MAY, 1917.

3° WEST PLUS TABULAR QUANTITIES.

15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.		
32.7	31.9	30.1	27.6	28.6	26.5	26.4	27.2	25.9	26.7	15 12	34.3	21.1	13.2	1	
29.5	28.9	28.8	28.4	27.6	26.8	25.6	24.8	25.0	26.4	15 16	29.8	8 12	21.7	8.1	2
29.5	29.6	28.7	28.1	27.9	27.8	27.2	27.2	26.8	26.5	15 30	29.7	9 28	21.5	8.2	3
26.5	26.3	26.1	25.9	26.2	26.4	26.3	26.1	25.7	25.7	15 00	26.8	9 00	23.9	2.9	4
28.5	27.4	26.3	26.3	26.8	26.7	26.7	26.7	26.7	26.7	14 00	30.1	7 09	24.4	5.7	5
29.7	28.3	29.5	27.2	26.8	26.7	25.9	25.8	27.2	13 43	30.0	6 45	24.8	5.2	6	
27.8	26.2	25.2	25.5	26.6	26.4	26.7	26.7	26.0	13 15	29.4	7 35	21.7	7.7	7	
27.8	27.1	26.6	26.6	26.9	27.0	26.9	26.7	26.6	26.6	12 40	29.1	7 15	22.2	6.9	8
29.2	27.9	27.1	26.8	26.0	25.9	26.3	26.5	26.7	26.6	13 30	29.5	7 03	22.1	7.4	9
28.4	28.1	27.7	27.3	26.9	26.8	26.5	25.8	25.7	25.7	15 00	28.6	8 29	20.9	7.7	10
30.0	29.0	28.4	27.7	27.5	27.1	26.6	26.6	26.5	26.7	14 30	30.5	8 00	22.6	7.9	11
27.6	27.0	26.8	27.1	26.7	26.7	26.4	25.6	26.1	14 20	28.3	9 05	23.6	4.7	12	
27.7	27.7	27.2	27.2	27.3	27.0	26.8	26.6	26.6	25.9	15 30	27.8	8 29	22.0	5.8	13
30.2	29.9	29.1	28.6	28.0	27.7	27.0	26.4	26.5	27.1	15 57	30.3	6 56	24.2	6.1	14
28.0	26.9	26.6	26.6	26.8	27.0	26.6	26.6	26.4	15 00	28.5	7 30	23.8	4.7	15	
26.6	25.3	25.2	25.9	26.6	26.5	26.1	26.3	26.3	26.1	11 50	28.0	3 50	23.2	4.8	16
29.9	28.9	28.2	27.7	27.6	27.3	26.8	27.0	27.1	27.4	13 30	30.9	7 03	23.8	7.1	17
28.7	27.3	26.6	26.9	27.6	27.4	27.2	26.9	26.9	27.0	13 12	32.7	7 13	22.8	9.9	18
28.9	27.5	26.6	27.3	27.5	27.4	27.2	27.0	27.1	27.1	11 45	30.5	7 24	22.2	8.3	19
30.0	28.0	26.6	26.6	27.2	27.2	26.9	26.9	27.0	26.8	14 05	30.7	7 39	22.0	8.7	20
29.6	29.5	27.2	27.0	27.2	27.1	27.1	27.0	27.0	26.8	14 00	30.5	8 01	22.6	7.9	21
30.3	28.6	27.2	26.8	26.9	26.9	26.8	26.8	26.9	26.4	14 29	30.9	8 19	20.5	10.4	22
30.1	28.7	27.5	27.2	27.3	27.1	26.8	26.7	26.7	26.6	14 53	30.7	7 57	20.8	9.9	23
29.0	27.8	27.6	27.6	27.7	27.5	27.1	27.0	26.9	26.6	14 03	29.8	7 57	21.8	8.0	24
29.6	28.2	27.0	27.0	27.4	26.9	26.1	25.7	26.3	26.6	15 10	29.6	7 44	22.4	7.2	25
28.9	27.5	27.2	27.5	27.7	27.4	27.3	27.1	26.8	26.5	15 13	29.3	8 05	20.5	8.8	26
29.2	29.4	28.5	27.9	28.2	28.2	27.2	26.8	26.3	26.4	14 55	29.4	7 56	22.2	7.2	27
28.8	28.4	28.0	27.7	27.8	27.5	26.7	26.7	27.3	26.4	15 15	30.0	8 31	22.6	7.4	28
29.7	28.9	28.5	27.5	27.0	26.9	27.1	27.1	26.7	15 57	29.8	7 11	22.4	7.4	29	
27.7	27.0	27.1	27.5	27.6	26.9	26.8	26.9	27.1	26.7	12 30	28.5	7 47	23.9	4.6	30
28.9	28.4	27.6	27.5	27.5	27.5	27.4	27.6	27.6	27.0	14 45	29.2	7 00	22.9	6.3	31
29.0	28.1	27.4	27.2	27.3	27.0	26.8	26.6	26.6	26.6					7.3	
29.1	27.9	27.3	27.0	27.1	27.0	26.9	26.8	26.8	26.7					7.6	
28.8	27.7	27.3	27.0	{27.0}	{26.9}	26.9	26.7	26.6	26.7						

JUNE, 1917.

3° WEST PLUS TABULAR QUANTITIES.

30.3	29.0	27.6	27.3	26.8	26.2	27.2	26.9	26.6	26.7	14 31	20.6	8 08	21.6	9.0	1
29.3	28.7	27.5	27.0	26.9	27.0	26.9	26.9	26.9	26.5	15 00	29.5	8 18	22.8	6.7	2
31.3	30.4	29.2	28.2	27.2	26.3	26.2	26.2	26.1	26.7	15 00	31.7	7 58	20.9	10.8	3
30.6	29.4	28.4	27.4	27.5	27.0	27.4	27.2	27.4	26.9	13 47	31.0	7 00	21.5	9.5	4
28.6	28.9	27.5	27.2	27.3	27.4	27.0	27.1	27.3	26.6	14 42	29.8	8 14	21.4	8.4	5
31.0	29.4	28.5	27.6	27.7	27.6	27.5	27.3	27.3	26.5	14 25	31.5	8 30	19.3	12.2	6
30.4	29.7	28.8	26.9	26.6	27.5	27.5	27.4	27.3	26.8	15 06	30.7	8 55	21.9	8.8	7
28.0	27.3	26.8	26.7	26.9	26.6	26.7	26.4	26.6	26.7	14 53	29.4	8 36	22.9	6.5	8
29.6	28.5	28.3	27.5	27.4	27.2	26.9	26.6	25.8	26.4	14 30	30.2	8 10	20.2	10.0	9
29.3	28.9	28.7	28.3	27.9	27.2	26.4	26.8	26.2	26.2	15 05	29.3	8 20	21.2	8.1	10
28.5	27.2	27.2	27.6	28.0	27.7	27.3	27.3	27.2	26.2	13 30	29.4	8 20	21.2	8.2	11
30.0	28.1	28.0	27.2	27.8	27.8	27.4	27.3	27.2	26.5	15 50	30.3	8 57	21.4	8.9	12
27.9	28.1	28.1	27.9	27.2	27.0	26.8	27.8	27.5	26.1	14 57	28.6	8 00	21.4	7.2	13
30.2	28.6	27.4	27.2	27.7	27.7	27.8	27.4	27.2	26.6	14 00	30.4	7 55	21.4	9.0	14
30.4	30.0	28.7	27.9	27.8	27.5	27.4	26.2	26.2	26.8	16 00	30.5	7 41	21.9	8.6	15
29.8	30.0	29.4	28.3	28.0	27.7	27.3	27.2	27.4	26.3	16 30	30.2	8 05	21.2	9.0	16
28.2	27.3	27.0	27.4	27.7	27.6	26.8	26.8	26.6	26.0	15 40	28.4	7 42	22.0	6.4	17
30.3	29.2	27.9	27.2	27.6	27.6	27.6	27.3	27.2	26.8	15 20	30.6	8 13	23.1	7.5	18
30.5	29.6	28.9	27.9	27.8	27.2	27.2	27.1	27.1	26.3	16 00	30.7	9 15	20.5	10.2	19
29.8	28.9	27.9	27.1	27.5	27.2	27.3	27.2	27.1	26.4	15 40	29.9	7 55	21.1	8.8	20
30.4	29.6	28.6	27.3	27.3	27.4	27.1	26.9	27.0	26.1	15 30	30.6	9 10	21.1	9.5	21
29.4	29.3	29.2	28.3	28.4	27.8	26.3	26.4	26.1	26.5	16 00	29.6	8 08	22.3	7.3	22
31.7	31.2	29.5	28.5	28.7	28.2	27.1	27.1	27.1	26.3	15 28	32.0	9 14	20.1	11.9	23
27.7	31.2	29.0	28.6	29.2	28.6	28.8	26.6	27.1	26.3	16 42	31.4	9 50	19.1	12.3	24
30.9	30.1	29.2	28.7	28.4	27.9	27.8	27.6	27.4	26.0	16 00	31.1	9 09	19.1	12.0	25
30.2	30.1	29.1	28.5	28.1	27.9	27.1	27.0	27.0	26.6	16 00	30.5	9 20	22.2	8.3	26
29.2	28.8	28.4	28.1	27.9	27.2	27.0	26.6	27.0	26.5	15 42	29.5	9 00	22.7	6.8	27
31.9	30.7	29.5	28.6	28.1	26.7	26.6	26.0	26.9	15 20	32.1	8 35	22.9	9.2	28	
31.8	30.1	29.1	28.6	28.1	28.1	27.6	27.0	27.0	26.7	14 30	32.7	8 35	22.0	10.7	29
31.1	30.7	29.9	28.6	28.1	28.1	27.9	27.6	27.6	26.6	16 00	31.3	8 30	20.4	10.9	30
29.9	29.3	28.4	27.8	27.7	27.4	27.2	27.0	26.9	26.5					9.1	
29.9	29.2	28.2	27.5	27.4	27.3	27.1	27.0	26.7	26.5					8.6	
30.2	29.4	28.4	27.6	{27.6}	{27.3}	27.4	27.2	27.1	26.5						

JULY, 1917.

3° WEST PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	27.1	27.0	26.9	27.0	26.7	26.0	25.0	23.2	21.9	21.8	22.7	23.9	26.0	27.7	28.7
2	26.3	26.3	26.9	26.2	24.9	24.1	23.6	21.2	21.9	23.0	24.0	27.0	29.7	31.1	31.3
3	26.8	26.1	25.3	24.9	24.7	25.0	24.1	23.9	23.8	24.2	25.9	28.0	29.4	31.2	31.6
4	26.8	26.8	26.3	26.1	25.5	24.9	23.3	21.2	20.2	20.4	21.0	23.2	25.4	27.4	29.3
5*	26.9	26.9	27.1	26.8	26.1	24.7	24.3	23.0	22.1	22.5	23.3	24.8	27.6	29.8	30.7
6*†	27.1	27.0	27.0	26.7	26.2	25.7	24.4	22.9	22.6	23.5	24.4	25.7	26.1	27.2	28.1
7	26.6	26.6	26.6	26.6	25.7	24.7	23.3	21.7	20.9	23.4	24.9	25.9	28.1	29.8	30.7
8*	27.4	27.4	27.1	27.0	26.7	26.5	25.6	25.2	25.5	26.2	27.1	27.5	28.0	28.6	29.5
9	27.2	27.3	27.1	27.0	26.6	26.2	25.2	23.9	21.8	20.9	21.4	23.2	25.9	28.8	29.6
10	26.9	26.9	27.4	27.3	26.9	25.9	25.7	24.9	24.9	24.2	24.3	24.9	25.6	26.6	28.0
11	26.6	26.6	27.3	27.2	26.8	26.3	28.0	25.8	24.8	25.9	26.2	27.4	27.9	27.9	28.3
12	26.6	26.5	26.2	26.2	26.0	25.8	24.8	24.1	24.8	25.2	25.6	26.6	26.8	28.5	30.1
13	26.8	26.4	28.1	27.7	29.2	28.2	26.3	26.8	24.3	24.7	24.6	25.8	26.1	27.1	28.3
14	26.5	27.6	27.9	27.6	26.8	26.2	24.6	23.6	23.6	24.8	25.0	25.6	26.6	28.3	29.9
15	27.8	27.6	27.5	27.4	26.4	26.0	24.8	23.3	21.9	22.8	23.3	24.8	26.0	27.9	29.0
16*†	27.8	27.6	27.5	27.1	26.6	26.6	25.5	24.1	23.8	24.2	25.6	26.9	28.9	28.6	29.9
17*†	27.5	27.5	27.4	27.2	26.8	26.4	24.8	23.8	23.3	24.1	25.0	26.2	26.9	26.6	26.8
18*†	27.4	27.4	27.2	27.1	26.8	26.6	25.2	23.8	22.8	22.9	23.5	24.8	26.4	27.9	30.0
19*†	27.4	27.4	27.4	27.3	26.6	26.1	24.3	22.1	21.0	22.4	23.9	26.2	27.4	29.1	29.4
20*†	27.4	27.4	27.4	27.3	26.7	26.4	25.2	23.2	21.7	22.9	24.4	26.2	27.1	28.6	30.5
21	27.1	27.0	27.0	27.1	27.0	26.1	24.4	22.3	21.4	21.6	22.9	25.4	27.4	29.5	32.0
22	27.3	27.0	26.7	26.4	25.4	24.5	23.4	21.6	21.2	22.4	23.6	25.1	27.1	28.2	29.5
23	27.4	27.6	27.1	27.0	26.4	26.9	24.8	22.9	21.6	22.3	24.2	26.0	26.5	27.5	27.8
24*	27.2	28.0	27.4	27.4	26.6	26.1	25.4	24.7	25.0	26.0	26.2	26.3	26.7	28.5	29.6
25*	27.2	27.1	27.1	27.2	26.7	26.5	26.2	25.3	23.6	23.8	24.9	26.4	27.6	29.4	30.9
Mean.....	27.0	27.0	27.0	26.9	26.4	25.8	24.8	23.4	22.8	23.5	24.5	26.1	27.4	28.6	29.5
Mean*....	27.3	27.4	27.3	27.1	26.6	26.2	25.1	23.8	23.1	23.8	24.8	26.1	27.3	28.4	29.5
Mean†....	27.4	27.4	27.3	27.1	26.6	26.3	25.0	23.6	22.8	23.5	24.6	26.0	27.1	27.8	29.1

AUGUST, 1917.

3° WEST PLUS TABULAR QUANTITIES.

1	26.7	26.2	26.2	27.7	26.8	25.5	23.5	23.0	23.6	24.8	26.7	28.6	29.7	29.4	28.6
2	27.5	27.2	26.8	26.5	26.2	25.0	22.5	21.1	23.2	26.2	28.8	30.9	31.0	29.9	29.0
3*	27.6	27.5	27.1	26.8	26.2	25.1	22.7	20.6	21.6	24.6	28.5	32.0	32.6	32.8	32.8
4*	27.1	27.2	27.5	27.2	26.6	25.6	23.6	21.5	20.4	20.7	22.6	25.6	28.0	30.5	31.5
5*†	27.6	27.5	27.3	27.3	26.4	26.3	23.6	20.5	20.0	21.7	25.2	28.7	31.7	32.7	32.3
6*†	27.5	27.5	27.5	27.5	26.9	26.5	24.6	22.7	22.3	22.6	23.5	25.7	28.5	30.0	32.3
7	27.5	27.4	27.2	27.2	26.5	25.6	23.1	20.3	20.9	22.0	24.2	27.6	31.7	32.2	31.7
8	26.5	27.0	27.4	26.8	26.8	26.5	24.6	22.0	20.7	20.6	22.1	22.2	22.8	24.1	25.8
9	30.7	31.9	33.7	27.1	31.2	25.1	21.2	18.9	19.6	22.1	24.2	26.6	28.3	30.0	30.9
10	26.8	27.7	27.6	28.5	28.4	26.5	23.6	21.0	21.2	22.2	25.3	27.7	29.9	31.6	32.3
11	27.7	27.0	28.1	27.6	26.7	26.4	25.5	24.8	24.8	25.7	27.3	28.6	29.7	29.7	29.3
12*	27.6	27.6	27.5	27.4	26.9	26.7	25.3	22.2	21.7	23.2	25.2	27.6	29.7	30.5	30.6
13	27.6	27.5	27.3	27.4	27.4	26.6	24.3	22.6	23.6	26.9	29.7	30.7	32.7	32.1	32.1
14	28.6	28.7	28.5	28.5	27.8	27.5	25.6	23.3	21.6	23.1	27.9	29.5	30.7	32.6	32.0
15	27.0	28.0	27.0	25.6	26.1	26.1	22.5	20.2	19.9	20.7	24.0	27.0	30.7	32.0	31.8
16	27.9	27.8	27.5	27.3	26.5	25.7	24.4	22.4	20.6	21.3	23.5	25.6	28.1	30.0	30.7
17	27.3	26.6	26.9	26.6	25.5	25.5	22.6	20.9	22.6	25.5	28.8	31.0	32.1	32.2	31.2
18*†	27.4	27.5	26.7	26.6	26.5	25.5	23.7	21.4	20.6	22.2	24.5	26.8	27.5	28.2	28.9
19†	28.1	27.8	27.5	27.2	26.5	25.5	23.5	21.0	20.1	21.5	24.9	28.6	30.5	31.5	30.9
20	28.2	28.1	27.9	27.7	26.6	25.6	23.5	20.8	21.9	26.4	29.0	31.2	31.4	32.0	32.1
21	26.7	26.7	26.5	25.2	25.4	25.5	22.5	24.9	26.5	26.6	30.4	31.1	31.8	32.2	32.2
22	27.2	27.2	29.4	29.3	29.7	29.8	27.5	26.2	25.8	27.5	29.1	31.4	32.0	32.6	32.7
23	27.8	27.7	27.5	28.1	27.2	26.0	24.5	23.2	23.1	23.4	25.1	26.9	28.1	29.4	30.6
24	28.3	28.6	29.2	29.1	27.8	27.2	25.5	24.5	24.1	25.6	26.9	28.0	29.8	30.9	31.0
25	28.5	28.3	28.1	27.8	27.1	26.4	24.1	22.5	22.2	25.7	28.3	29.6	31.4	32.4	32.4
26	28.5	28.3	27.7	27.6	27.2	26.2	25.1	23.0	21.9	22.6	24.2	27.0	28.9	29.9	30.0
27	28.3	28.1	28.5	28.5	27.5	26.9	25.5	23.0	22.0	22.5	23.4	26.5	27.9	29.6	30.0
28*†	28.2	28.0	28.0	27.8	27.5	26.6	24.5	22.5	22.4	23.5	25.5	28.4	30.5	31.6	31.7
29*†	28.5	28.8	28.5	28.1	27.5	26.8	24.5	22.2	22.7	24.3	26.5	28.4	30.2	31.6	32.4
30*†	28.6	28.3	28.1	27.8	27.5	26.4	23.9	22.2	22.6	23.4	24.7	27.8	28.9	29.4	29.7
31*†	28.2	28.4	28.7	27.8	26.7	25.7	23.5	21.6	23.5	26.5	28.7	31.5	32.7	33.0	32.4
Mean.....	27.8	27.8	27.9	27.5	27.1	26.2	24.1	22.1	22.1	23.6	25.9	28.3	29.8	30.8	31.0
Mean*....	27.8	27.8	27.7	27.4	26.9	26.1	24.0	21.7	21.8	23.3	25.5	28.2	30.0	31.0	31.5
Mean†....	28.0	27.9	27.8	27.6	27.0	26.3	24.1	21.8	21.5	22.7	25.1	28.0	30.3	31.5	31.9

\* Ten least disturbed days.

† Five international quiet days.

## HOURLY VALUES OF DECLINATION.

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JULY, 1917.

3° WEST PLUS TABULAR QUANTITIES.

15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.
29.0	28.7	28.1	28.1	28.1	27.9	27.0	27.0	26.4	16 00	29.2	8 57	21.5	7.7 1
31.6	30.8	29.5	28.7	28.8	28.4	28.2	27.8	27.5	13 15	32.0	7 42	20.3	11.7 2
31.5	29.7	28.6	28.0	28.5	28.0	28.0	27.5	27.2	13 30	32.0	7 42	23.2	8.8 3
30.3	30.2	29.3	28.4	28.2	28.2	28.1	27.1	26.0	16 00	30.6	10 11	20.0	10.6 4
31.0	29.3	28.1	27.2	27.4	27.7	27.6	27.7	26.7	15 17	31.4	9 00	22.1	9.3 5
29.0	28.8	28.3	28.1	28.4	28.1	27.3	26.9	26.5	15 45	29.1	8 05	22.1	7.0 6
30.2	29.6	28.6	28.0	28.1	28.0	27.8	27.7	26.7	15 30	30.3	8 12	20.0	10.3 7
29.6	28.8	28.0	27.9	28.0	28.0	28.0	27.6	27.5	15 20	29.9	7 35	24.9	5.0 8
30.7	30.0	29.6	29.1	29.1	28.4	28.1	27.1	26.9	15 55	31.0	9 18	20.6	10.4 9
29.5	30.0	29.6	29.1	29.0	27.6	28.2	27.1	27.0	16 00	30.0	10 10	23.9	6.1 10
29.4	29.0	28.0	27.0	27.6	28.3	27.9	27.8	27.0	15 40	29.7	8 41	24.7	5.0 11
31.5	31.3	29.8	28.0	27.9	27.0	27.7	27.4	27.1	16 00	31.9	8 02	23.2	8.7 12
29.0	28.5	27.9	27.5	26.7	26.6	26.7	26.8	27.0	4 13	30.0	8 37	22.8	7.2 13
30.5	29.1	29.2	28.8	28.4	28.1	27.9	27.7	28.0	15 30	30.7	8 09	23.2	7.5 14
29.9	29.2	28.7	28.1	28.0	28.0	27.9	27.8	26.8	15 30	30.0	9 03	21.9	8.1 15
29.9	29.1	28.1	27.0	27.2	26.9	27.2	27.4	27.1	15 50	30.1	8 30	23.6	6.5 16
27.1	26.9	26.8	27.1	27.4	27.4	27.5	27.2	26.5	1 50	28.0	8 30	23.3	4.7 17
30.5	29.0	27.6	26.6	26.7	26.8	27.0	27.4	26.6	14 51	30.6	9 11	22.7	7.9 18
29.4	28.9	28.5	27.4	27.4	27.6	27.4	27.3	26.6	14 30	29.5	8 15	20.6	8.9 19
30.8	29.6	28.0	26.6	26.7	27.1	27.0	27.1	26.8	15 10	31.0	8 38	21.6	9.4 20
33.5	32.5	31.2	29.1	29.1	28.3	27.6	26.4	27.2	16 00	33.6	7 55	21.0	12.6 21
29.7	28.9	28.3	27.5	27.8	27.9	28.1	27.6	26.4	15 30	29.9	8 00	20.7	9.2 22
28.5	28.8	28.5	27.7	28.0	27.7	27.6	27.4	26.5	15 35	28.6	8 30	21.4	7.2 23
30.2	29.6	28.9	28.5	28.0	28.0	27.2	27.2	27.3	15 40	30.4	7 42	24.3	6.1 24
31.4	30.9	30.0	29.2	28.6	28.1	27.7	27.4	27.1	15 30	31.4	8 43	23.3	8.1 25
29.5	29.6	29.3	28.7	29.0	28.5	28.0	27.4	27.2	16 00	29.6	8 52	21.7	7.9 26
30.0	30.2	30.3	30.0	29.4	28.5	28.5	27.6	27.4	16 07	30.5	8 00	22.4	8.1 27
29.8	29.5	28.5	28.3	27.4	26.0	26.3	25.7	26.8	16 00	30.2	7 56	20.4	9.8 28
29.5	29.1	28.7	28.3	28.5	28.5	28.2	27.4	27.3	13 15	30.3	8 05	19.7	10.6 29
31.0	30.7	29.9	29.1	29.1	28.9	28.8	28.6	28.1	16 03	31.5	7 30	22.5	9.0 30
28.4	27.2	27.0	27.7	28.5	28.0	26.6	26.2	26.2	12 41	31.6	7 25	21.2	10.4 31
30.1	29.5	28.7	28.1	28.1	27.8	27.7	27.3	27.1	26.9				8.4
29.9	29.1	28.2	27.6	27.6	27.5	27.4	27.3	27.3	26.9				7.3
29.5	28.7	27.8	27.1	{27.5	{27.5	27.3}	27.6	27.4	26.7				

AUGUST, 1917

3° WEST PLUS TABULAR QUANTITIES.

28.6	28.6	28.2	28.0	28.4	28.2	27.6	27.8	28.0	27.1	12 15	30.0	7 27	22.2 1
28.5	27.5	26.6	26.6	27.3	27.2	26.9	27.6	27.6	27.0	12 00	31.5	6 44	20.7 2
32.2	29.8	27.6	27.8	28.2	27.9	28.2	27.9	27.8	11 19	33.0	7 35	20.4 3	
32.5	31.6	29.6	27.9	27.7	27.6	27.7	27.6	27.6	15 40	32.6	8 33	20.2 4	
31.5	29.7	27.7	27.9	28.0	27.7	27.7	27.6	27.6	13 24	32.7	8 00	19.2 5	
32.7	31.2	29.2	28.2	28.2	28.2	27.6	27.6	27.5	15 00	33.0	7 54	22.0 6	
31.3	30.7	30.0	29.3	28.1	27.6	27.2	26.5	25.6	27.1	12 32	32.9	7 56	19.6 13.3 7
27.6	28.7	28.6	27.8	28.2	28.4	27.6	27.3	27.5	16 52	29.0	9 12	20.3 8.7 8	
31.4	29.9	29.2	27.2	26.0	26.5	29.5	27.8	26.4	2 32	39.3	7 12	16.5 22.8 9	
32.3	30.8	29.2	28.2	28.2	27.7	27.7	27.4	27.9	15 05	32.6	7 07	20.6 12.0 10	
29.0	28.3	28.4	28.3	28.3	28.3	28.2	28.0	27.8	12 40	29.8	7 02	24.5 5.3 11	
30.5	29.5	28.5	27.9	27.9	27.7	28.2	28.0	27.9	14 00	30.6	7 46	20.7 9.9 12	
32.7	31.6	31.4	30.4	30.8	30.4	29.7	29.6	29.4	13 26	34.2	7 36	22.0 12.2 13	
31.2	29.8	28.3	26.4	25.6	24.9	24.2	26.3	27.8	15 49	33.5	9 08	20.5 13.0 14	
31.6	30.1	29.0	28.9	29.3	28.8	28.9	28.6	28.2	13 16	32.2	7 47	19.3 12.9 15	
31.5	30.6	29.9	29.4	29.4	29.1	28.4	27.9	27.5	15 22	31.7	8 36	20.5 11.2 16	
29.5	27.5	27.2	27.6	28.1	28.1	27.6	28.0	27.4	13 10	32.7	7 19	20.1 12.6 17	
29.4	29.7	29.6	29.5	29.6	29.5	28.7	28.5	28.4	16 45	29.9	8 19	20.3 9.6 18	
29.6	28.4	27.5	28.1	28.5	28.5	28.5	28.5	28.4	13 57	31.6	8 20	19.9 11.7 19	
31.7	31.0	30.1	29.6	30.1	28.5	28.6	29.4	27.1	14 04	32.2	7 16	19.5 12.7 20	
31.6	(29.9)	(28.3)	(27.4)	(26.6)	25.5	25.3	26.7	26.9	27.4	14 00	32.6	7 13	20.8 11.8 21
32.6	30.8	28.5	27.5	27.2	27.3	27.7	28.3	28.1	14 11	33.4	7 49	25.5 7.9 22	
31.5	30.6	29.6	28.6	28.9	28.5	28.5	27.6	28.1	15 45	31.8	7 32	22.4 9.4 23	
30.7	30.0	29.9	29.7	29.6	29.1	28.7	28.5	28.5	14 00	31.1	7 45	23.8 7.3 24	
33.1	33.3	32.4	32.2	31.6	30.7	29.7	25.7	28.2	16 00	34.6	8 38	21.5 13.1 25	
29.7	29.0	28.6	28.6	29.0	29.1	28.9	28.7	28.6	14 12	30.6	8 15	21.5 9.1 26	
30.6	30.4	30.2	29.1	28.6	28.8	28.9	28.7	28.6	16 00	30.6	8 00	21.5 9.1 27	
31.4	30.2	28.9	28.5	28.7	28.7	28.7	28.5	28.5	14 30	31.9	7 50	21.5 10.4 28	
32.4	30.8	29.7	29.7	30.0	29.6	29.6	29.4	28.9	15 37	32.6	7 30	21.6 11.0 29	
30.1	29.9	29.6	29.6	29.5	29.3	28.6	28.5	27.7	15 37	30.4	7 37	21.8 8.6 30	
31.2	29.4	29.3	28.5	28.8	28.8	28.8	28.8	28.4	13 00	33.2	7 08	21.5 11.7 31	
31.0	30.0	29.1	28.5	28.5	28.3	28.2	28.0	27.9	27.6			11.1	
31.4	30.2	29.0	28.6	28.7	28.5	28.4	28.3	28.2	27.6			11.1	
31.5	30.1	28.6	28.5	{28.5	{28.5	28.3	28.2	28.2	27.6				

## PORTO RICO MAGNETIC OBSERVATORY.

SEPTEMBER, 1917.

3° WEST PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1*†	28.6	28.5	28.2	27.6	27.1	26.2	23.9	21.4	20.8	23.4	26.4	29.6	31.5	32.5	32.5
2	28.4	28.4	28.2	27.8	26.6	26.5	23.9	20.8	20.3	21.9	26.7	30.4	32.3	33.3	32.6
3	28.0	27.9	27.9	28.9	27.9	27.6	26.2	22.4	20.7	22.7	25.4	29.1	31.5	31.8	30.7
4	28.7	28.9	29.2	29.2	27.2	27.2	24.1	21.4	20.1	20.4	23.1	26.4	29.7	32.4	33.2
5	28.6	28.4	31.5	27.8	27.5	30.5	28.6	25.3	25.4	23.3	24.6	27.4	(30.1)	31.7	31.9
6	28.4	28.4	28.4	28.2	28.3	27.2	25.4	23.2	22.5	23.8	26.2	28.9	30.8	32.8	32.9
7	28.4	28.5	28.8	28.8	28.1	27.4	26.4	24.5	23.9	25.1	26.9	28.1	28.8	30.3	31.5
8	28.6	29.5	28.8	28.6	28.1	27.2	26.0	24.1	23.1	23.4	24.9	27.4	29.6	30.1	30.1
9	27.4	27.5	27.8	27.2	29.0	27.0	26.4	25.4	25.4	25.9	26.8	27.4	29.1	30.3	30.3
10	28.4	28.3	28.4	28.3	28.4	27.5	26.4	24.4	23.6	24.9	27.0	28.7	30.1	30.5	(30.8)
11*†	28.9	28.5	28.4	28.8	28.1	27.3	25.5	24.1	23.9	24.7	26.4	28.4	29.9	30.8	31.6
12	28.7	28.6	28.4	28.4	27.7	27.3	26.0	24.5	24.4	25.4	26.9	29.2	31.1	31.5	32.0
13	28.2	27.9	28.0	27.8	27.6	26.9	25.6	24.8	25.4	25.9	27.4	29.5	31.5	31.8	31.3
14*	28.5	28.4	28.0	27.8	27.1	26.5	24.6	22.5	23.0	25.4	28.1	30.2	31.6	32.1	32.2
15*	28.4	28.2	28.0	27.6	27.0	26.6	26.2	23.7	23.8	25.4	27.4	29.6	31.6	32.5	32.3
16*	28.4	28.5	28.1	28.0	27.4	27.0	24.4	21.7	21.6	23.3	26.0	28.4	31.1	33.2	33.0
17	28.4	28.4	27.8	28.4	27.5	27.1	25.4	22.9	23.0	25.4	27.4	29.5	32.5	33.7	33.6
18	28.4	28.1	28.1	27.5	27.1	25.1	23.0	22.6	24.1	25.8	28.2	30.0	31.5	32.4	32.4
19	28.4	27.4	27.4	28.4	27.5	27.3	25.8	23.4	23.5	25.8	28.0	28.5	29.5	30.9	31.3
20	28.8	29.1	28.4	27.8	27.1	26.6	25.7	25.4	23.8	24.4	26.2	28.3	30.3	32.0	33.4
21	27.9	28.4	28.4	28.4	28.4	28.2	26.8	25.4	24.6	24.6	25.4	27.0	29.5	31.5	32.6
22	28.4	28.4	28.2	27.9	27.4	27.0	25.9	24.8	24.9	24.9	25.5	27.0	28.1	29.6	30.9
23*†	28.5	28.2	28.3	28.3	28.0	27.8	26.4	24.9	23.6	24.5	26.0	27.1	28.0	29.8	31.2
24*	28.4	28.3	28.1	28.2	27.5	27.1	26.1	25.6	24.6	25.0	25.8	26.6	27.5	29.2	30.5
25*†	28.4	28.3	28.4	28.2	27.7	27.4	26.3	25.2	23.4	23.2	23.4	23.9	26.0	27.8	29.1
26*†	28.5	28.5	28.6	28.5	28.2	27.7	27.2	24.6	24.9	25.5	26.9	28.2	28.5	29.5	30.5
27*	28.4	28.4	28.4	28.4	28.1	27.9	26.5	24.7	24.0	24.5	26.0	28.0	29.6	30.6	30.8
28	28.5	28.4	28.3	28.0	27.4	27.5	27.7	26.4	25.4	25.4	25.9	27.4	28.4	29.5	30.3
29	28.6	28.5	28.5	28.4	27.8	27.5	27.0	25.5	25.4	27.3	29.5	31.2	31.5	31.4	30.8
30	27.7	27.4	27.3	26.4	26.5	26.6	26.6	25.7	25.4	27.4	28.0	29.5	30.1	30.0	
Mean...	28.4	28.3	28.3	28.1	27.7	27.3	25.9	24.1	23.6	24.6	26.3	28.3	30.0	31.2	31.5
Mean*...	28.5	28.4	28.2	28.1	27.6	27.2	25.7	23.8	23.4	24.5	26.2	28.0	29.5	30.8	31.4
Mean†...	28.6	28.4	28.4	28.3	27.8	27.3	25.9	24.0	23.3	24.3	25.8	27.4	28.8	30.1	31.0

OCTOBER, 1917.

3° WEST PLUS TABULAR QUANTITIES.

1	28.1	27.7	27.8	27.8	27.9	28.4	27.2	26.4	25.9	26.9	28.9	30.9	31.5	31.9	31.7
2	27.6	29.2	28.7	28.7	29.0	27.6	26.0	24.2	23.2	24.1	25.4	27.5	29.0	30.6	31.4
3	28.6	28.7	29.5	29.5	29.0	29.0	29.0	27.4	25.6	26.4	27.3	28.9	29.5	29.9	30.5
4	30.0	28.4	28.4	28.4	29.5	30.8	30.0	28.0	26.6	25.2	25.6	27.2	29.6	31.4	32.1
5	28.6	28.6	28.6	28.6	28.4	28.1	27.5	25.5	23.9	23.6	26.1	28.0	29.2	30.6	31.0
6	28.4	28.5	29.5	30.3	30.9	30.5	28.3	26.2	24.5	24.3	25.0	25.5	27.2	28.7	30.5
7*	29.3	29.3	29.0	29.0	28.7	28.7	28.2	26.7	24.6	23.6	24.7	25.9	27.7	30.3	31.6
8	29.4	29.3	29.0	29.0	28.4	28.4	29.1	26.4	23.5	23.4	23.4	24.4	26.4	29.0	30.4
9	29.0	29.0	28.4	29.5	29.3	28.5	29.1	28.4	27.5	26.5	27.4	28.4	29.5	30.1	30.6
10	29.2	29.0	28.6	28.6	28.4	28.4	28.0	27.0	26.0	25.9	26.8	27.4	28.5	27.5	28.2
11	29.0	28.7	28.6	28.6	28.2	27.8	27.8	26.9	26.2	26.2	28.3	28.0	28.4	28.9	29.0
12*	29.1	29.0	28.7	28.7	28.4	28.2	27.6	26.5	25.5	27.0	28.3	29.8	30.6	31.0	30.8
13	29.2	29.4	29.3	29.0	28.5	28.5	28.1	27.4	26.3	26.3	27.4	29.0	29.8	30.7	31.9
14	29.1	28.4	28.0	27.5	27.5	27.5	30.5	30.3	26.0	25.8	26.2	28.2	28.9	29.4	29.5
15*	29.3	30.1	29.9	29.7	28.9	28.7	28.5	27.4	27.0	27.3	28.2	29.5	29.5	29.5	29.7
16*†	29.7	29.7	29.8	29.8	28.8	28.4	27.8	26.4	25.4	25.7	26.9	28.6	29.9	30.6	31.3
17*	29.8	29.9	29.9	29.9	29.6	28.4	27.5	26.4	25.4	25.6	27.7	29.6	30.4	31.0	31.1
18*	29.8	29.9	29.8	29.7	29.5	28.6	27.7	26.1	24.4	24.4	25.4	27.6	29.5	30.6	31.2
19*	29.7	29.6	29.6	29.2	28.8	29.3	27.7	26.6	25.3	25.5	26.4	28.3	29.5	30.5	31.3
20*†	29.4	29.2	29.1	29.0	28.4	28.2	27.4	27.1	26.1	25.1	26.4	28.8	31.3	32.3	32.4
21*†	29.1	29.1	29.3	29.2	29.0	28.5	28.0	27.0	26.0	25.7	26.8	28.3	29.3	29.8	30.2
22*†	29.2	29.2	29.1	29.1	29.0	28.3	27.6	25.5	24.0	24.6	26.0	27.7	29.5	30.9	31.9
23	28.8	28.7	28.4	28.4	28.9	28.7	28.3	28.6	27.8	27.0	27.0	28.2	29.5	30.5	31.7
24	28.8	28.7	28.4	28.4	28.9	28.7	28.3	28.6	27.8	27.0	27.0	28.2	29.5	30.5	31.7
25	27.3	27.1	27.1	27.1	27.3	28.3	28.1	27.6	27.3	27.9	29.3	30.2	30.2	30.7	31.1
26	29.7	29.7	29.6	29.4	29.0	28.9	29.0	28.7	28.3	28.3	28.9	30.1	30.8	31.2	31.3
27	29.2	29.1	28.6	28.3	27.9	27.4	27.9	27.9	27.4	28.0	28.0	29.2	30.3	30.4	30.6
28	29.6	29.6	30.1	29.5	29.5	29.5	31.6	31.2	31.8	30.1	28.4	28.5	29.2	29.9	31.6
29	28.4	29.5	30.1	30.2	29.9	29.4	28.4	29.0	29.2	27.4	28.4	29.8	30.3	30.7	31.9
30	28.9	29.3	29.5	30.4	30.3	31.3	30.0	27.4	25.9	25.8	26.0	27.8	29.4	30.9	32.4
31	30.4	30.3	30.3	30.0	29.0	29.3	28.5	26.9	24.7	23.5	24.2	25.4	27.7	29.4	31.2
Mean...	29.1	29.1	29.1	29.1	28.9	28.7	28.3	27.2	26.0	25.9	26.9	28.3	29.5	30.3	31.0
Mean*...	29.4	29.5	29.4	29.3	28.9	28.5	27.8	26.6	25.4	25.4	26.7	28.4	29.7	30.6	31.2
Mean†...	29.4	29.4	29.4	29.3	28.8	28.5	27.7	26.5	25.4	25.3	26.5	28.3	29.9	30.8	31.4

\* Ten least disturbed days.

† Five international quiet days.

## HOURLY VALUES OF DECLINATION.

37

SEPTEMBER, 1917.

3° WEST PLUS TABULAR QUANTITIES.

15h-16h	16h-17h	17h-18h	18h-19h	19h-20h	20h-21h	21h-22h	22h-23h	23h-24h	Mean.	Maximum.	Minimum.	Range.	Day.
'	'	'	'	'	'	'	'	'	'	'	'	'	
31.8	30.8	30.3	29.8	29.6	29.4	28.8	28.8	28.8	28.2	14 00	33.0	8 15	20.6 12.4 1
31.2	30.1	29.5	28.9	27.9	27.9	26.1	27.0	28.3	27.7	13 27	33.6	7 55	19.0 14.6 2
29.5	27.9	27.7	28.0	28.4	27.4	27.4	28.2	28.6	27.6	13 16	32.1	8 07	19.0 13.1 3
32.5	31.1	30.2	29.2	28.5	29.2	28.6	28.9	28.9	27.9	14 13	33.5	8 42	19.6 13.9 4
31.7	(30.4)	29.2	29.2	28.5	29.6	29.5	28.4	28.4	28.7	14 2 38	33.5	9 35	21.9 11.6 5
32.9	31.6	30.1	29.5	29.6	29.4	29.1	29.0	29.1	28.6	14 32	33.5	8 17	21.4 12.1 6
31.5	30.9	30.1	29.7	29.2	29.1	29.2	29.2	29.1	28.5	14 28	31.7	8 03	23.4 8.3 7
30.4	30.0	29.5	28.9	27.3	28.4	28.3	27.7	27.6	27.8	15 30	30.4	8 15	22.7 7.7 8
29.9	29.5	29.2	29.5	29.5	29.2	29.0	29.2	27.3	28.1	13 38	30.5	8 15	24.7 5.8 9
(30.5)	29.6	29.5	29.5	29.4	29.2	29.0	29.0	29.0	27.1	14 00	30.8	8 12	23.4 7.4 10
31.8	30.6	29.6	29.5	29.5	29.2	28.6	28.6	28.8	28.4	15 08	31.9	7 55	23.3 8.6 11
31.6	30.5	30.2	29.9	30.0	29.8	29.5	29.2	28.7	28.7	14 20	32.0	8 15	24.0 8.0 12
30.6	30.0	29.9	30.2	30.5	30.0	29.9	29.5	29.0	28.7	13 37	32.0	6 57	24.6 7.4 13
31.9	30.8	30.2	29.9	29.5	29.5	29.2	29.1	28.5	28.5	13 57	32.5	7 50	22.1 10.4 14
31.5	30.2	29.5	29.5	29.4	29.4	29.2	28.8	28.8	28.5	13 41	32.6	7 50	23.4 9.2 15
31.4	30.3	29.5	29.5	29.5	29.4	29.0	28.5	28.5	28.2	14 23	33.5	7 50	21.1 12.4 16
33.6	(31.5)	31.0	30.1	30.1	29.6	29.5	29.3	28.7	28.9	14 04	34.0	8 09	22.4 11.6 17
33.0	32.1	31.5	30.9	30.7	28.9	28.5	28.9	28.9	28.5	15 00	33.0	7 49	22.1 10.9 18
32.2	31.1	30.3	30.1	30.0	29.5	29.4	29.0	29.0	28.5	15 55	32.7	7 42	22.7 10.0 19
33.2	31.6	31.0	29.2	28.5	28.4	28.3	28.2	28.3	28.5	14 27	33.6	8 45	23.5 10.1 20
32.5	(31.8)	31.1	30.0	29.7	29.5	29.3	28.4	28.4	28.7	14 23	33.0	8 50	24.3 8.7 21
31.9	31.6	30.9	30.0	30.0	29.5	29.4	28.8	28.8	28.3	16 00	32.1	7 28	24.2 7.9 22
31.2	30.5	30.4	30.2	30.1	29.7	29.5	28.8	28.4	28.3	14 42	31.4	8 33	23.6 7.8 23
31.2	30.8	30.3	30.0	29.8	29.5	29.3	29.1	28.6	28.2	15 47	31.3	8 15	24.4 6.9 24
29.5	30.5	30.6	30.3	30.2	29.8	29.5	28.7	28.8	27.7	17 15	30.7	9 14	22.7 8.0 25
30.5	30.4	30.5	30.3	30.1	29.5	29.4	29.0	29.0	28.5	16 10	30.5	7 30	24.5 6.0 26
31.2	30.7	30.5	30.4	29.9	29.3	28.9	28.7	28.7	28.4	15 30	31.3	8 10	23.7 7.6 27
30.3	30.1	30.5	30.5	30.7	29.6	29.5	29.3	29.2	28.5	19 30	30.8	9 53	25.3 5.5 28
(30.1)	29.5	29.5	29.5	29.5	29.3	29.0	28.5	28.1	28.8	12 30	32.0	8 11	24.9 7.1 29
29.5	28.6	29.0	28.4	28.9	29.1	28.7	28.4	28.9	28.1	13 39	30.6	8 20	24.1 6.5 30
31.4	30.5	30.1	29.7	29.5	29.3	29.0	28.8	28.6	28.3				9.2
31.2	30.6	30.1	29.9	29.8	29.5	29.2	28.9	28.7	24.3				8.9
31.0	30.6	30.3	30.0	{29.7}	{29.4}	29.2	28.9	28.8	28.2				

OCTOBER, 1917.

3° WEST PLUS TABULAR QUANTITIES.

31.1	(30.8)	30.4	29.6	29.5	28.9	28.6	28.9	29.1	29.0	13 36	32.1	8 42	25.5 6.6 1
31.2	30.2	29.6	29.8	29.6	28.4	27.9	28.4	28.4	28.2	14 00	31.6	8 36	22.6 9.0 2
30.9	(30.4)	(30.0)	(29.5)	(28.9)	28.2	27.4	27.8	27.7	28.7	(16 ..)	(30.9)	8 30	25.4 5.5 3
32.3	31.3	30.5	29.8	29.6	28.7	29.2	29.2	29.2	29.4	14 00	32.8	9 00	24.9 7.9 4
31.5	30.9	30.7	30.5	29.6	28.9	29.2	29.5	28.4	28.6	15 30	31.6	9 03	23.2 8.4 5
31.5	31.6	30.7	30.2	30.2	29.8	29.5	29.5	29.5	29.5	5 10	32.6	8 57	23.5 9.1 6
32.6	32.0	31.3	(30.8)	(30.3)	(29.7)	29.3	29.5	29.5	28.9	16 00	32.7	9 30	23.2 9.5 7
30.6	31.2	31.4	30.9	30.5	29.9	29.7	29.5	29.4	28.4	17 25	31.7	8 43	22.5 9.2 8
30.7	30.5	30.5	30.2	30.0	29.2	29.5	29.5	29.0	29.2	15 05	30.7	9 28	26.0 4.7 9
28.8	29.7	30.4	30.4	30.3	29.5	29.5	29.5	29.4	28.6	23 37	31.0	8 48	25.7 5.3 10
29.0	29.0	29.7	30.0	29.8	29.7	29.5	29.5	29.4	28.7	19 15	30.0	9 36	25.6 4.4 11
30.8	30.4	30.9	30.5	30.3	29.7	29.6	29.6	29.6	29.2	13 00	31.0	7 54	25.3 5.7 12
31.2	29.8	30.0	29.9	29.5	29.4	28.6	27.4	28.7	29.0	14 00	32.6	8 30	26.0 6.6 13
29.8	30.5	30.5	30.4	30.2	29.7	29.5	29.2	29.0	28.8	6 43	33.3	8 54	25.2 8.1 14
29.8	30.0	30.3	30.2	29.9	29.7	29.5	29.6	29.7	29.2	1 20	30.7	8 30	26.8 3.9 15
31.6	31.5	31.1	30.5	30.3	29.8	29.5	29.5	29.7	29.3	16 00	31.8	9 00	25.4 6.4 16
31.2	30.7	30.5	29.6	29.6	29.3	29.5	29.5	29.7	29.2	13 35	31.3	8 53	25.3 6.0 17
31.3	30.5	30.3	30.2	30.0	29.5	29.5	29.6	29.5	28.9	14 40	31.4	9 20	23.9 7.5 18
31.6	31.4	31.1	30.5	30.1	29.7	29.5	29.5	29.5	29.2	16 00	31.8	8 45	25.3 6.5 19
31.8	30.8	30.7	30.3	29.7	29.6	29.1	29.0	29.2	29.2	13 10	32.6	8 52	24.5 8.1 20
30.7	30.9	30.6	30.1	29.8	29.0	29.0	29.3	29.3	28.9	16 00	30.9	9 15	25.6 5.3 21
32.5	(31.9)	(31.5)	(31.0)	(30.3)	(29.6)	(29.3)	(29.3)	(29.3)	29.0	16 00	32.5	8 40	23.7 8.8 22
31.6	31.1	29.2	29.4	29.3	29.3	29.3	29.3	29.3	29.3	..	..	..	..
32.6	32.0	31.5	30.7	30.5	29.8	29.0	28.3	28.1	29.3	15 52	33.0	9 40	26.4 6.6 24
31.2	30.4	30.2	30.3	29.9	29.9	29.9	29.7	29.2	29.2	13 57	31.6	3 48	25.5 6.1 25
32.0	31.6	31.5	30.8	30.4	30.1	29.9	29.3	29.9	29.9	16 00	32.2	9 45	28.3 3.9 26
30.7	31.3	31.2	30.6	30.3	29.7	29.7	29.5	29.4	29.3	17 07	31.6	8 20	27.3 4.3 27
32.9	32.3	32.0	30.5	29.9	29.8	29.4	29.4	29.4	29.3	15 14	33.3	23 04	26.7 6.6 28
32.4	30.7	30.8	30.4	28.7	28.2	28.3	28.0	28.4	29.6	15 15	32.5	9 42	26.6 5.9 29
33.1	31.9	31.0	30.5	30.3	29.4	28.2	28.6	28.1	29.5	15 27	33.5	8 48	25.3 8.2 30
32.4	32.3	31.5	31.1	28.6	29.5	29.6	29.5	29.7	29.0	15 47	32.7	10 00	23.4 9.3 31
31.3	31.0	30.7	30.4	29.9	29.4	29.2	29.2	29.1	29.1				6.8
31.4	31.0	30.8	30.4	30.1	29.6	29.4	29.4	29.5	29.1				6.8
31.6	31.3	31.0	30.6	{30.0}	{29.5}	29.4	29.4	29.4	29.1				

## PORTO RICO MAGNETIC OBSERVATORY.

NOVEMBER, 1917.

3° WEST PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	30.2	29.8	29.8	30.7	30.3	29.5	29.3	29.0	26.9	25.5	25.6	27.0	29.3	30.3	31.2
2	29.9	30.3	30.4	30.3	29.9	29.5	29.3	27.9	25.4	24.2	24.7	27.2	29.3	30.9	31.2
3	30.3	29.5	29.7	29.9	29.6	30.2	29.6	27.7	25.5	24.4	24.5	25.4	26.7	27.7	29.6
4*	29.4	29.5	29.6	29.5	29.5	29.4	29.3	29.4	26.5	25.4	25.8	27.7	29.2	30.3	31.1
5*	29.5	29.5	29.4	29.5	29.4	29.4	29.5	28.6	26.7	25.4	25.2	26.2	27.8	29.5	30.6
6*	29.0	28.8	28.8	28.7	(28.8)	(29.0)	(29.1)	(28.8)	27.3	26.3	24.7	26.0	27.8	29.7	31.3
7	29.5	29.5	29.6	29.5	29.5	29.4	29.7	29.4	27.5	26.1	25.7	26.7	28.4	30.4	32.2
8	(29.8)	(29.7)	(29.6)	(29.5)	29.4	29.4	29.6	29.8	29.0	28.3	27.0	27.3	28.0	29.0	30.5
9*†	29.6	29.7	29.7	29.7	29.6	29.6	29.7	29.6	28.3	27.3	26.5	26.7	27.3	28.3	30.4
10*†	29.6	29.6	29.6	29.6	29.4	29.4	29.6	29.5	27.8	28.2	29.3	30.3	31.2	31.3	31.3
11*	29.6	29.5	29.6	29.7	29.7	29.6	29.7	29.6	29.4	29.0	29.4	29.1	29.5	30.3	31.2
12	29.7	30.2	30.4	30.1	32.3	30.6	29.6	28.9	28.2	28.0	28.4	30.9	32.0	32.5	33.3
13	30.3	29.6	30.2	30.2	29.7	29.7	29.7	29.0	28.0	27.3	27.3	28.2	29.9	32.1	33.3
14	29.5	29.6	29.4	29.2	28.0	28.3	28.5	28.3	27.8	27.0	27.3	28.7	30.6	31.7	31.9
15*†	30.2	30.3	30.4	30.4	30.1	29.8	29.6	28.4	27.0	26.3	26.5	27.4	29.4	30.7	31.7
16*†	30.4	30.5	30.5	30.6	30.3	29.9	29.6	28.4	27.4	26.6	26.8	28.2	30.1	31.4	31.9
17	30.0	30.3	30.3	30.2	30.2	29.7	29.7	29.8	29.1	28.1	28.7	30.6	31.7	31.7	32.0
18	30.3	30.7	30.9	31.0	30.5	30.7	30.5	29.9	28.5	28.1	28.7	29.7	30.7	31.7	32.2
19	29.9	30.6	30.7	31.3	30.5	30.4	31.1	30.7	29.1	27.9	27.9	29.1	30.6	31.9	33.6
20	29.6	29.7	29.8	30.3	30.3	29.8	29.8	28.9	27.2	26.6	26.6	27.1	27.9	30.0	31.7
21	30.2	30.3	30.5	30.5	30.4	30.4	30.0	28.9	27.6	27.0	27.6	28.5	29.7	30.7	31.3
22*	30.3	30.5	30.5	30.5	30.4	30.3	29.8	28.6	27.2	26.9	28.0	29.9	31.1	31.7	32.2
23*†	30.2	30.4	30.5	30.6	30.4	29.9	29.7	28.6	26.9	26.1	26.4	27.8	29.9	31.4	31.7
24	30.3	30.7	30.7	30.8	30.5	30.5	30.5	29.7	28.5	28.0	27.9	28.9	29.7	31.2	32.4
25	30.7	30.7	30.7	30.2	29.9	29.8	29.8	28.6	26.6	26.8	28.0	30.5	31.7	32.2	
26	29.9	30.6	31.2	30.8	31.5	30.0	29.7	28.7	26.6	28.1	29.6	29.6	30.5	30.8	31.1
27	30.0	30.6	31.9	30.6	30.5	29.9	30.7	30.0	27.8	26.4	27.0	28.6	31.2	32.9	34.4
28	30.7	30.8	31.2	30.9	30.6	30.0	29.7	28.3	26.5	26.1	27.6	30.5	32.7	33.8	33.7
29	30.7	31.0	31.5	30.4	30.3	29.9	29.7	28.6	28.4	25.7	27.0	29.2	31.4	32.0	32.4
30	30.8	31.5	31.0	30.9	30.4	30.0	31.2	30.5	28.2	26.7	27.4	29.7	31.7	33.3	
Mean.....	30.0	30.1	30.3	30.2	30.1	29.8	29.8	29.1	27.6	26.8	27.0	28.2	29.8	31.0	31.9
Mean*....	29.8	29.8	29.9	29.9	29.8	29.6	29.6	29.0	27.6	26.7	26.8	27.8	29.2	30.4	31.3
Mean†....	30.0	30.1	30.1	30.2	30.0	29.7	29.6	28.9	27.8	26.8	26.9	27.9	29.4	30.6	31.4

DECEMBER, 1917.

3° WEST PLUS TABULAR QUANTITIES.

1	30.8	30.8	31.0	31.1	30.9	30.5	30.2	29.9	27.7	26.4	27.1	29.1	31.0	32.5	33.5
2	30.6	30.9	31.1	31.2	31.9	30.9	30.4	28.7	27.2	25.9	26.0	27.6	30.5	33.0	34.5
3	30.8	30.9	31.0	31.1	30.8	31.8	31.7	31.4	29.8	28.1	28.2	28.7	30.4	31.7	32.3
4	29.5	30.0	30.7	30.0	30.6	30.4	30.1	30.1	28.2	28.2	27.7	29.0	30.6	32.7	33.3
5	29.8	30.2	30.3	30.3	30.0	29.7	29.8	29.8	27.7	25.4	24.7	26.2	29.5	31.0	31.8
6*	30.2	30.6	30.8	30.8	30.7	30.6	30.8	30.9	29.2	27.7	26.9	27.6	28.5	30.6	32.0
7*	30.2	30.3	30.4	30.7	30.1	30.0	30.3	29.8	28.0	26.9	26.9	28.5	30.6	32.8	34.5
8	29.9	29.7	30.0	30.1	30.2	30.7	30.9	31.2	29.6	26.7	26.0	27.3	30.6	33.5	33.9
9	30.5	30.7	31.0	31.3	31.5	31.7	31.4	31.4	27.9	25.7	25.1	26.4	29.8	32.2	33.6
10†	30.1	30.3	30.5	30.8	30.7	30.4	30.7	30.7	28.7	27.2	26.5	27.9	31.8	33.9	34.3
11*	30.2	30.3	30.3	30.7	30.6	30.7	30.7	30.7	28.7	27.2	26.9	28.2	30.8	33.4	34.1
12*	30.5	30.7	31.0	31.0	30.3	30.0	30.4	30.6	28.5	28.3	27.7	28.6	29.8	31.7	32.4
13*†	30.6	30.6	30.7	30.7	30.3	30.4	30.3	30.4	28.8	27.2	26.8	28.2	30.1	31.8	32.4
14	30.4	30.5	30.6	30.7	30.5	30.3	30.4	30.4	28.6	26.8	27.8	30.3	31.8	33.1	34.0
15	30.8	31.3	31.1	31.1	30.6	30.1	30.3	30.8	28.3	28.2	27.6	28.3	30.3	31.8	32.5
16	30.6	30.8	30.9	30.7	30.2	29.9	31.3	31.1	29.7	26.4	25.2	28.8	33.6	33.8	33.0
17	30.1	31.0	31.9	31.9	31.4	31.4	31.4	31.5	32.0	30.8	29.9	30.3	31.0	31.8	32.8
18	31.1	31.3	31.5	31.6	31.3	31.7	33.5	34.1	31.2	28.2	26.8	27.0	28.6	30.9	33.0
19	30.8	30.8	30.9	31.0	31.1	30.8	30.4	28.7	27.3	27.1	27.7	29.3	31.5	32.8	33.8
20	30.6	31.1	31.5	31.8	31.9	30.5	30.2	30.1	28.6	27.0	27.4	28.2	28.2	29.3	31.1
21*	30.4	30.7	30.8	30.9	30.8	30.8	30.9	31.1	29.8	27.7	26.3	26.3	27.7	30.4	31.9
22*†	30.7	30.7	30.8	30.9	30.8	30.8	31.1	31.1	28.5	26.1	24.7	24.5	25.7	29.0	32.0
23*†	30.7	30.8	30.8	30.8	30.8	30.8	30.8	31.1	30.1	28.1	27.8	28.1	29.0	31.7	33.4
24*	30.1	30.6	30.8	30.8	30.7	30.4	30.8	30.6	28.5	25.9	25.6	26.6	27.8	30.8	32.7
25*	30.8	30.8	31.0	31.1	30.4	30.5	30.8	30.8	29.2	27.7	26.7	26.7	27.7	30.5	31.8
26	30.6	30.9	30.8	30.8	30.7	32.6	30.9	30.8	28.7	26.9	26.7	27.4	28.2	29.9	31.1
27	30.7	30.9	30.8	30.8	30.4	30.6	31.1	31.4	29.2	27.2	25.6	25.7	27.5	30.6	32.2
28	30.9	30.9	30.8	31.0	30.8	30.7	30.7	30.7	28.7	27.0	26.4	28.8	31.3	32.5	33.4
29	30.8	31.1	30.8	30.9	30.9	30.8	30.6	30.8	29.3	27.2	26.3	26.6	27.2	28.7	31.2
30	30.8	31.0	31.2	31.3	30.6	30.5	30.4	31.0	30.2	28.5	26.7	25.7	26.7	29.5	32.4
31†	30.1	30.4	30.8	30.9	30.5	30.4	30.1	30.1	28.7	26.9	25.8	25.8	27.6	30.2	32.7
Mean.....	30.5	30.7	30.9	30.9	30.8	30.7	30.8	30.7	29.0	27.2	26.7	27.7	29.5	31.6	32.8
Mean*....	30.4	30.6	30.7	30.8	30.6	30.5	30.7	30.7	28.9	27.2	26.7	27.3	28.8	31.3	32.7
Mean†....	30.4	30.6	30.7	30.8	30.6	30.6	30.6	30.7	29.0	27.1	26.3	26.9	28.8	31.3	33.0

\* Ten least disturbed days.

† Five international quiet days.

## HOURLY VALUES OF DECLINATION.

NOVEMBER, 1917.

3° WEST PLUS TABULAR QUANTITIES.

15h-16h	16h-17h	17h-18h	18h-19h	19h-20h	20h-21h	21h-22h	22h-23h	23h-24h	Mean.	Maximum.	Minimum.	Range.	Day.
,	,	,	,	,	,	,	,	,	,	,	,	,	
31.2	30.6	30.5	30.5	30.4	29.7	29.5	29.7	29.6	29.4	3 36	31.6	9 40	25.4
31.4	31.2	31.0	30.6	30.5	(29.8)	(29.6)	29.6	29.5	29.3	16 00	31.4	9 49	23.9
31.2	31.6	31.0	30.4	30.2	29.5	29.3	29.3	29.3	28.8	16 30	31.7	10 08	23.6
31.1	30.7	30.5	30.3	30.2	29.6	29.4	29.4	29.4	29.3	14 52	31.3	9 32	25.4
31.6	31.6	30.8	30.4	30.3	29.6	28.6	28.4	28.9	29.0	16 00	31.7	10 30	25.2
32.6	32.6	32.1	31.6	30.9	30.2	29.8	29.7	29.4	29.3	16 00	32.9	10 08	24.4
32.6	31.7	31.3	30.7	30.7	29.9	29.8	(29.8)	(29.8)	29.6	15 00	32.9	10 05	25.3
31.6	31.6	31.3	30.7	30.4	29.8	29.7	29.7	29.6	29.6	16 00	32.7	10 45	27.0
31.3	31.6	31.5	30.9	30.6	30.2	29.9	29.7	29.7	29.5	17 03	31.7	10 47	26.3
31.9	32.2	31.5	30.6	30.3	29.9	29.6	29.6	29.6	30.0	16 00	32.3	9 50	27.4
31.2	30.6	30.9	30.4	30.3	29.6	29.6	29.6	29.7	29.9	14 40	31.4	10 15	28.4
33.3	33.4	32.4	31.3	29.6	29.4	29.5	29.5	29.3	30.6	4 55	33.9	8 15	27.4
33.2	32.6	31.6	31.6	31.3	30.1	29.7	29.5	29.6	30.2	14 50	34.1	10 10	27.3
31.7	31.2	30.6	30.4	30.6	30.1	30.2	30.3	30.3	29.6	14 45	32.4	9 06	26.1
31.8	31.3	30.6	30.5	30.3	30.1	30.0	30.1	29.7	14 33	32.1	9 32	26.0	6.1
32.2	31.7	31.2	30.7	30.6	29.8	29.7	29.7	29.8	29.9	16 00	32.2	9 50	26.6
31.8	31.7	31.4	30.8	30.7	29.9	29.8	29.9	29.9	30.3	14 26	32.2	9 08	27.9
32.7	32.1	31.4	30.7	30.4	30.3	29.3	29.4	29.7	30.4	15 50	32.8	9 13	27.6
33.3	32.4	31.4	30.7	30.6	29.9	28.5	29.0	29.5	30.4	14 27	33.8	10 13	27.4
32.6	32.3	31.8	31.2	30.7	30.0	30.2	30.2	30.2	29.8	16 00	32.6	9 10	25.8
31.4	31.3	31.2	31.1	31.1	30.2	29.9	29.9	30.0	30.0	15 00	31.5	9 15	26.8
32.1	31.9	31.7	31.3	31.0	30.5	30.2	30.3	30.4	30.3	15 00	32.4	9 10	26.8
31.7	31.7	31.7	31.4	31.3	30.4	30.3	30.2	30.3	30.0	16 00	31.9	9 45	25.7
32.7	31.7	31.4	31.0	30.7	30.2	30.0	29.9	30.4	30.3	15 30	32.8	10 00	27.4
32.7	33.6	32.7	31.7	31.3	30.3	30.1	30.1	28.7	30.2	17 00	33.7	8 50	26.1
31.7	31.3	31.4	30.8	30.3	29.8	29.5	30.0	30.2	30.2	15 15	32.3	8 45	25.8
33.7	32.2	31.9	31.2	29.9	28.6	29.8	29.9	30.0	30.4	14 43	34.8	9 29	25.7
32.7	31.8	31.0	30.8	30.7	30.3	30.4	30.4	30.5	30.5	13 30	34.1	9 37	25.8
32.6	32.1	31.3	30.8	30.7	30.4	30.4	30.5	30.6	30.3	15 27	32.6	8 57	25.5
33.2	31.7	31.1	30.9	30.9	30.5	30.4	30.3	30.6	30.4	14 23	33.5	10 15	26.0
32.2	31.8	31.3	30.9	30.6	30.0	29.8	29.8	29.9	29.9				6.4
31.8	31.6	31.2	30.8	30.6	30.0	29.7	29.7	29.7	29.7				5.8
31.8	31.7	31.3	30.8	{30.6}	{30.1}	30.0	30.0	30.0	29.8				

DECEMBER, 1917.

3° WEST PLUS TABULAR QUANTITIES.

33.7	32.7	31.6	31.0	30.8	30.4	30.0	29.9	30.3	30.5	14 37	33.8	9 42	26.0
34.5	33.2	32.3	31.5	31.1	30.7	30.8	30.8	31.0	30.7	15 12	34.8	9 36	25.6
32.8	31.8	31.0	31.0	31.1	29.0	28.7	29.4	28.9	30.5	15 55	33.0	9 49	27.7
33.6	32.8	32.6	32.0	31.3	29.8	29.5	29.4	29.6	30.5	14 29	33.8	8 15	27.4
32.3	32.3	31.5	31.8	31.4	30.1	29.3	28.9	29.8	29.7	16 12	32.4	10 09	24.6
33.2	32.8	31.8	30.9	30.9	30.7	30.4	30.0	29.9	30.4	15 36	33.3	10 50	26.7
34.1	32.3	31.4	30.9	30.6	30.1	30.0	30.4	29.8	30.4	14 33	34.9	10 01	26.7
34.1	33.2	32.0	31.7	31.2	29.8	29.7	30.2	30.2	30.5	15 58	34.9	10 20	25.7
33.7	32.7	31.8	31.3	30.9	30.4	30.0	30.2	30.7	30.4	15 00	33.9	10 35	24.8
34.3	33.4	32.0	31.0	30.8	30.5	30.2	30.1	30.2	30.7	14 15	34.4	10 30	26.1
33.6	31.8	31.1	30.9	30.5	30.0	30.0	30.2	30.4	30.5	14 28	34.3	10 06	26.7
32.7	31.8	31.1	30.8	30.7	30.1	30.1	30.1	30.3	30.4	15 09	32.8	10 20	27.7
32.9	32.3	31.4	30.9	30.8	30.3	30.3	30.4	30.4	30.5	15 50	32.9	10 25	26.5
33.8	32.4	31.3	30.9	30.8	30.1	30.0	30.2	30.7	30.7	14 38	34.1	9 44	26.6
32.8	31.8	31.1	30.8	30.6	30.0	29.8	29.9	30.1	30.5	15 40	32.8	10 40	27.3
32.8	31.9	32.4	29.0	29.2	29.0	29.2	25.1	26.4	30.0	13 20	35.9	22 01	21.1
33.8	33.1	32.0	31.9	31.7	30.9	30.8	30.9	30.9	31.5	15 33	34.0	10 51	29.4
34.2	33.6	32.8	32.0	31.4	30.4	30.5	31.0	30.8	31.2	6 58	36.9	11 00	26.3
33.9	33.9	33.6	32.4	31.8	30.8	30.1	30.0	30.1	30.9	17 00	34.6	10 00	26.7
32.0	32.2	32.0	31.8	31.7	30.9	30.4	30.2	30.4	30.4	4 20	33.3	9 32	26.6
33.6	33.3	32.4	31.9	31.4	30.7	30.3	30.5	30.6	30.5	16 00	33.7	11 16	26.1
33.8	33.4	31.4	31.8	31.7	31.0	30.8	30.7	30.8	30.1	16 00	34.0	10 52	24.2
33.6	32.9	32.6	32.0	31.5	30.8	30.7	30.7	30.8	31.2	6 58	36.9	11 00	26.3
33.1	32.5	32.1	30.9	31.0	30.6	30.6	30.7	30.8	30.2	15 40	33.5	10 45	25.7
32.8	32.5	31.8	31.5	31.2	30.4	30.0	30.0	30.1	30.3	15 50	33.2	11 40	26.7
31.9	32.0	31.7	31.0	30.7	29.8	29.8	29.9	30.1	30.2	5 16	33.4	10 28	26.3
32.8	32.3	31.9	31.5	31.0	30.5	30.2	30.4	31.0	30.3	15 15	32.9	10 55	25.2
33.4	33.0	31.9	31.0	30.8	30.1	30.0	30.0	30.7	30.6	15 40	33.5	14 00	26.1
32.8	33.1	31.8	30.8	30.7	30.0	30.1	30.3	30.8	30.2	16 00	33.3	10 07	26.0
33.4	32.9	31.9	30.9	30.8	30.1	30.0	30.0	30.2	30.3	15 00	33.7	11 30	25.4
33.6	33.0	31.9	30.9	30.8	30.2	30.2	30.2	30.7	30.1	15 00	33.7	11 10	25.3
33.3	32.7	31.9	31.2	31.0	30.3	30.1	30.0	30.2	30.5				8.4
33.3	32.6	31.7	31.2	31.0	30.5	30.3	30.4	30.4	30.4				7.7
33.6	33.0	31.9	31.3	{31.1}	{30.5}	30.3	30.3	30.4	30.4				7.2

JANUARY, 1918.

3° WEST PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	30.9	30.9	30.9	31.0	30.7	30.7	30.7	30.8	29.1	27.5	26.9	27.3	28.4	30.4	31.8
2*	30.7	30.7	30.9	31.0	30.9	30.9	30.9	31.1	29.9	27.9	26.9	27.1	28.1	31.3	34.0
3	30.0	30.2	30.4	30.8	30.8	30.5	30.7	(31.0)	31.4	30.1	28.7	28.9	28.9	31.6	34.2
4	30.2	30.0	30.0	29.8	30.3	31.0	31.2	(31.3)	30.8	29.6	28.9	28.7	29.1	30.2	31.4
5	30.3	30.5	30.7	31.0	31.0	31.3	31.3	32.4	31.0	28.9	28.0	28.6	30.5	33.0	34.5
6	30.3	30.0	30.4	30.7	30.7	30.9	30.8	31.2	30.0	28.7	28.5	28.3	29.2	31.0	32.0
7*	30.6	30.9	30.9	31.0	31.0	31.0	31.0	31.0	29.5	28.1	27.6	27.6	28.9	31.6	33.0
8*†	30.7	30.5	30.7	30.8	31.0	30.6	31.0	31.2	30.7	28.9	27.9	28.0	28.9	30.9	31.8
9	30.8	31.0	31.0	31.0	31.0	31.1	31.1	31.4	30.0	27.9	26.4	26.7	27.9	30.5	32.0
10	31.0	31.0	31.0	31.2	31.8	31.2	31.3	31.2	30.0	28.9	27.8	28.0	29.0	31.0	32.8
11*†	31.2	31.4	31.6	31.6	31.1	31.1	31.2	31.3	29.2	27.1	27.8	27.3	28.3	30.5	32.1
12	31.2	31.2	31.3	31.1	31.3	31.8	31.9	33.1	34.1	32.1	31.1	33.2	33.1	34.5	35.0
13	31.2	31.1	31.1	31.0	30.9	30.7	30.4	30.4	28.6	26.7	27.1	27.9	29.5	32.2	34.9
14	30.9	31.4	31.4	31.5	31.2	31.1	31.1	31.3	30.3	28.5	28.1	29.4	31.0	33.0	33.6
15	31.0	31.4	31.4	31.3	31.2	31.0	31.1	31.3	30.2	28.7	29.2	30.6	32.7	34.6	35.4
16*	31.0	31.1	31.1	31.2	30.5	31.1	30.3	30.0	28.1	27.0	27.0	27.8	30.9	33.5	35.1
17*†	31.2	31.2	31.3	31.3	31.1	31.0	30.9	30.9	28.4	27.1	27.0	28.2	32.1	35.9	37.7
18*†	31.2	31.4	31.5	31.7	31.5	31.2	31.1	31.0	29.1	26.5	25.4	26.0	29.5	34.0	36.2
19*†	31.1	31.3	31.5	31.6	31.8	31.6	31.4	31.2	29.0	26.5	25.1	25.2	29.1	33.8	36.7
20	31.1	31.3	31.8	31.7	31.4	31.1	31.0	30.7	29.0	26.9	26.1	27.1	29.1	32.7	34.5
21	31.2	31.5	31.6	31.8	31.7	31.5	31.6	32.2	31.0	28.1	27.7	29.3	30.9	33.7	35.3
22*	31.1	31.7	31.9	32.1	32.0	32.0	31.8	31.4	30.0	28.2	27.7	28.2	30.1	32.2	34.1
23*	31.3	31.6	31.9	32.2	32.1	32.1	31.7	31.6	29.5	27.1	25.6	26.2	29.7	34.5	36.3
24	31.6	32.0	32.1	32.0	31.8	31.5	31.4	31.8	29.8	28.0	27.2	28.4	29.9	34.2	35.3
25	32.0	31.6	32.0	32.0	32.1	31.9	31.2	30.9	28.2	26.6	27.3	27.8	32.1	32.7	34.6
26	32.0	32.2	32.2	32.2	32.1	31.6	31.2	30.8	28.8	27.7	27.5	28.8	30.1	32.4	34.4
27	31.6	32.1	31.8	32.8	31.7	31.2	31.2	31.2	29.3	28.2	27.6	28.5	31.1	33.1	34.0
28	31.8	32.0	32.0	32.0	31.5	31.3	31.2	31.2	30.2	28.1	26.2	26.5	29.6	33.1	33.7
29	31.4	31.7	32.2	32.2	32.2	31.8	31.5	31.7	29.9	27.2	26.1	27.6	28.0	32.6	34.0
30	31.3	32.1	31.8	32.2	32.4	33.6	32.1	32.3	32.0	28.5	27.6	28.1	30.9	32.2	33.5
31	30.4	30.7	30.9	31.3	30.8	31.2	31.9	32.1	29.4	28.7	29.2	28.4	29.5	32.5	35.3
Mean...	31.0	31.2	31.3	31.5	31.3	31.3	31.2	31.3	29.9	28.1	27.5	28.1	29.9	32.6	34.2
Mean*...	31.0	31.2	31.3	31.4	31.3	31.3	31.1	31.1	29.3	27.4	26.8	27.2	29.6	32.8	34.7
Mean†...	31.1	31.2	31.3	31.4	31.3	31.1	31.1	31.1	29.3	27.2	26.6	26.9	29.6	33.0	34.9

FEBRUARY, 1918.

3° WEST PLUS TABULAR QUANTITIES.

1	30.8	31.0	31.2	31.4	31.9	31.3	31.2	31.6	29.3	27.2	26.5	28.3	31.9	34.3	34.9
2	31.1	31.2	31.6	31.7	31.8	32.0	32.2	31.7	29.8	28.2	27.3	27.4	29.8	30.6	31.9
3*	31.2	31.3	31.6	31.7	31.3	31.7	31.6	31.6	30.2	28.8	27.4	29.1	32.0	33.7	34.4
4*	31.3	31.5	31.6	31.7	31.7	31.7	31.6	31.7	31.3	28.2	26.7	29.2	32.2	33.7	33.6
5	31.4	31.7	31.8	31.6	32.0	31.9	31.2	30.9	30.3	27.3	25.8	27.7	31.2	34.3	34.1
6	30.3	31.1	32.1	31.6	34.3	33.7	32.1	31.4	30.5	29.2	28.7	29.6	31.4	32.8	33.4
7	31.9	32.0	32.2	32.4	32.7	32.1	32.1	32.5	30.5	28.3	27.8	29.6	32.0	33.3	33.5
8*†	31.9	32.0	32.0	32.1	32.0	31.8	31.5	32.0	31.0	29.0	28.1	29.1	31.0	32.2	32.2
9	31.5	30.9	32.0	32.1	31.9	31.9	31.8	31.9	31.1	29.7	29.3	31.3	32.0	32.9	32.3
10	31.5	31.6	31.6	31.2	31.3	31.2	31.4	31.4	30.7	30.2	29.5	30.4	32.2	33.6	33.5
11	31.4	31.9	31.9	31.3	31.4	31.3	30.9	30.1	28.2	26.9	27.0	29.0	32.1	34.3	35.4
12	31.9	31.5	33.1	31.8	31.4	31.8	31.7	32.2	30.4	28.9	29.0	30.5	32.3	34.5	35.4
13	30.8	30.4	30.5	31.0	31.9	31.3	31.1	30.2	28.2	28.2	29.6	31.9	34.2	35.1	36.0
14	30.6	30.8	30.6	30.6	30.5	30.6	31.8	30.7	27.7	27.0	27.2	29.3	31.7	34.1	35.0
15	31.6	32.2	32.1	32.2	32.1	32.0	32.0	31.3	28.9	27.2	27.6	29.4	32.3	35.8	37.3
16	32.0	32.2	32.7	33.1	33.2	32.9	31.8	31.7	30.4	28.1	27.4	28.8	31.3	33.3	35.3
17*†	32.1	32.3	32.4	33.1	32.2	32.1	32.1	31.7	29.7	27.9	27.5	28.4	30.5	32.2	33.9
18*	31.5	31.9	32.2	32.9	33.1	32.5	32.4	32.4	32.1	29.2	27.6	27.4	29.2	31.6	33.8
19*†	31.7	31.8	32.3	32.8	32.2	32.2	32.1	33.0	31.6	29.5	27.8	27.5	28.2	30.2	32.0
20*†	32.2	32.2	32.2	32.1	32.2	32.3	32.3	32.3	32.9	32.4	29.8	28.5	29.1	30.5	31.6
21	30.8	30.6	31.4	32.0	32.1	32.2	33.7	33.8	32.3	31.0	29.9	30.0	30.2	30.2	30.9
22*†	32.2	32.2	32.2	32.3	32.0	31.7	31.5	30.8	29.7	29.8	30.7	31.9	32.6	32.6	32.8
23	32.2	32.2	32.1	32.1	31.9	31.9	31.6	30.4	29.0	29.0	29.2	30.8	32.2	32.3	33.0
24	31.8	32.0	31.5	31.2	31.1	30.4	30.6	(30.4)	30.2	29.5	30.1	31.5	33.1	34.2	34.8
25*†	32.1	32.2	32.2	32.1	31.0	32.0	32.0	31.8	31.0	30.5	31.2	32.4	33.3	34.1	34.1
26*†	32.2	32.3	32.4	32.0	31.5	31.4	31.2	30.7	29.2	28.8	29.4	31.2	32.2	33.0	33.8
27	32.4	32.5	32.5	32.5	32.2	32.0	31.9	31.3	29.5	28.5	29.0	30.0	30.6	31.4	31.5
28	32.0	32.1	31.2	32.0	30.4	30.8	31.2	30.6	29.2	29.5	30.8	31.9	32.7	33.3	34.1
Mean...	31.6	31.7	31.9	32.0	31.9	31.8	31.7	31.5	30.2	28.8	28.4	29.7	31.6	33.0	33.7
Mean*...	31.8	32.0	32.1	32.3	31.9	31.9	31.8	31.8	30.8	29.2	28.5	29.4	31.0	32.4	33.2
Mean†...	32.0	32.1	32.2	32.3	31.7	31.8	31.7	31.7	30.5	29.5	29.4	30.4	31.5	32.4	33.0

\*Ten least disturbed days.

† Five international quiet days.

## HOURLY VALUES OF DECLINATION.

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JANUARY, 1918.

3° WEST PLUS TABULAR QUANTITIES.

15h-16h	16h-17h	17h-18h	18h-19h	19h-20h	20h-21h	21h-22h	22h-23h	23h-24h	Mean.	Maximum.	Minimum.	Range.	Day.	
32.9	32.2	31.5	31.0	30.9	30.4	30.4	30.7	30.7	30.4	16 00	33.0	10 20	26.4	6.6
34.3	33.0	31.8	31.0	30.9	30.3	30.0	29.9	30.6	30.6	15 10	34.6	11 25	26.6	8.0
34.9	33.9	32.8	31.4	31.4	31.2	30.8	30.3	30.5	31.1	14 42	35.0	10 48	28.4	6.6
32.9	33.3	32.6	32.1	31.4	30.8	30.6	30.3	30.3	30.7	16 25	33.4	11 35	28.5	4.9
34.8	(33.3)	32.2	31.6	31.0	(30.3)	30.4	30.6	30.6	31.2	15 08	35.0	10 30	27.9	7.1
33.0	33.0	32.2	31.6	31.3	30.8	30.8	30.8	30.8	30.7	16 15	33.3	11 24	28.0	5.3
34.0	33.8	32.9	31.8	31.2	30.7	30.6	30.7	30.7	30.8	15 40	34.1	10 40	27.1	7.0
32.4	32.3	31.7	31.0	30.9	30.7	30.7	30.7	30.7	30.6	16 12	32.6	11 14	27.4	5.2
33.0	33.3	32.4	31.5	31.3	30.1	30.1	30.2	30.5	30.5	16 12	33.4	10 47	26.0	7.4
33.0	32.7	32.0	31.0	31.0	30.8	30.8	30.8	31.0	30.8	16 07	33.1	10 36	27.7	5.4
33.1	33.2	32.5	31.6	31.3	31.2	31.1	31.2	31.2	30.8	16 10	33.3	9 53	26.2	7.1
35.0	33.8	32.1	31.9	33.0	31.7	30.9	30.3	30.9	32.3	14 38	35.5	22 30	30.1	5.4
35.4	34.4	32.1	31.5	31.3	30.2	30.2	31.1	31.2	30.9	15 35	35.7	9 42	25.9	9.8
33.6	33.2	32.1	31.6	31.5	30.9	30.9	30.9	31.1	31.2	14 00	33.8	10 30	27.7	6.1
35.3	34.1	32.6	31.7	31.6	30.9	30.9	30.7	31.0	31.7	14 20	35.6	9 17	28.4	7.2
34.2	33.0	31.9	31.8	31.6	30.8	30.9	31.0	31.1	30.9	14 36	35.3	10 16	26.7	8.6
37.5	35.2	33.0	31.8	31.6	31.1	30.8	30.6	31.0	31.6	14 43	38.1	10 27	26.6	11.5
36.1	34.2	32.2	31.9	31.7	31.1	31.0	30.8	31.1	31.1	15 16	36.3	10 57	25.1	11.2
36.7	35.2	33.1	32.0	31.6	31.2	31.0	31.0	31.0	31.2	14 54	37.2	11 10	24.3	12.9
34.5	33.5	32.1	31.4	31.5	31.1	31.0	31.1	31.1	31.0	14 47	34.7	10 40	26.0	8.7
35.1	33.8	32.7	32.0	31.5	31.0	30.2	29.5	31.0	31.5	14 50	35.4	9 39	27.2	8.2
35.3	34.3	32.7	32.1	32.1	31.3	31.2	31.0	31.2	31.5	15 30	35.4	10 46	27.3	8.1
36.2	34.7	33.1	31.8	31.8	31.3	31.2	31.3	31.5	31.5	14 40	36.7	11 00	25.2	11.5
34.3	33.2	32.3	31.9	31.5	31.2	31.0	31.2	31.4	31.5	14 03	35.5	10 12	27.1	8.4
35.0	34.2	33.0	32.2	32.0	31.6	31.5	31.7	31.4	31.5	15 30	35.2	9 39	26.4	8.8
34.4	32.8	32.2	31.5	31.6	31.4	31.2	31.3	31.5	31.3	15 03	34.9	10 19	27.1	7.8
34.3	33.6	32.8	32.2	32.2	31.4	31.4	31.6	31.7	31.5	14 39	34.4	10 37	27.4	7.0
34.3	33.9	32.8	32.1	32.1	31.3	31.2	31.2	31.4	31.3	15 32	34.3	10 50	25.6	8.7
34.1	33.6	34.4	34.4	33.2	31.5	30.2	30.0	31.1	31.4	18 41	34.8	10 16	25.4	9.4
34.3	34.9	31.5	31.9	30.5	30.3	29.4	30.5	30.3	31.4	16 34	35.5	10 51	27.2	8.3
36.5	35.3	34.3	34.1	32.9	32.0	31.2	30.0	31.6	31.6	15 41	36.8	9 30	28.0	8.8
34.5	33.7	32.5	31.9	31.6	31.0	30.8	30.8	30.9	31.2					8.0
35.0	33.9	32.5	31.7	31.5	31.0	30.8	30.8	31.0	31.1					9.1
35.2	34.0	32.5	31.7	{ 31.4	30.9	30.9	30.8	31.0	31.1					

FEBRUARY, 1918.

3° WEST PLUS TABULAR QUANTITIES.

33.9	34.1	32.2	32.3	32.6	31.3	31.2	31.2	30.0	31.3	14 41	35.2	10 16	26.4	8.8
32.2	31.8	32.1	32.0	31.3	31.7	31.2	31.1	31.3	31.0	18 14	32.4	9 48	27.1	5.3
34.4	33.3	32.4	32.2	32.1	31.3	31.2	31.2	31.3	31.5	14 50	34.9	10 48	27.3	7.6
33.4	32.7	32.7	32.3	32.2	31.4	31.2	31.3	31.3	31.5	13 34	34.0	10 33	26.5	7.5
33.7	32.5	32.3	32.1	32.1	31.6	31.0	30.4	28.3	31.1	13 36	35.0	10 41	25.3	9.7
33.8	33.9	33.5	32.7	32.5	32.1	31.7	31.2	31.3	31.9	4 54	35.3	10 28	28.4	6.9
33.4	32.9	32.9	32.4	32.2	32.2	32.0	32.0	32.0	31.9	14 13	33.7	10 25	27.6	6.1
31.9	31.3	32.2	32.2	32.2	31.5	31.2	31.3	31.4	31.4	13 46	32.5	10 28	28.0	4.5
31.2	32.1	32.1	32.2	32.2	31.5	31.3	31.6	31.0	31.4	13 52	33.3	10 25	29.2	4.1
32.8	32.2	32.2	31.9	32.2	32.1	29.3	31.2	31.3	31.5	13 42	34.2	21 20	27.3	6.9
35.6	34.3	32.7	31.4	32.1	31.3	31.2	30.6	31.9	31.4	15 02	35.9	9 35	26.4	9.5
34.8	33.8	33.0	34.1	34.2	32.0	32.1	31.0	30.1	32.1	14 22	35.5	9 04	28.4	7.1
35.6	34.5	34.3	34.3	34.3	33.4	31.6	30.2	30.4	32.0	15 00	36.3	8 50	27.6	8.7
35.4	35.0	34.3	33.2	32.9	31.9	31.4	31.5	31.9	31.5	15 22	35.6	9 32	26.9	8.7
34.7	35.9	34.3	33.1	32.3	31.5	31.4	31.5	31.7	32.1	14 37	38.2	9 33	27.0	11.2
36.3	35.3	34.1	33.0	32.6	31.9	31.8	31.7	32.1	32.2	15 22	36.4	10 26	27.1	9.3
34.4	34.3	33.1	32.5	32.5	32.0	31.5	31.4	31.4	31.7	15 29	34.6	10 50	27.1	7.5
35.4	36.0	34.8	33.3	33.1	32.3	32.1	32.0	31.9	32.1	16 30	36.1	11 12	27.2	8.9
32.8	33.3	33.4	33.3	33.3	32.7	32.3	32.0	32.2	32.1	17 53	33.4	11 08	27.2	6.2
32.8	33.3	33.4	32.9	32.8	32.1	31.7	31.6	31.7	31.7	17 50	33.5	11 14	28.2	5.3
32.0	32.9	33.8	33.5	33.1	32.3	32.2	32.2	32.2	31.9	7 26	34.3	10 51	29.6	4.7
32.8	32.8	33.3	33.3	33.1	32.2	32.0	32.1	32.2	32.0	18 00	33.4	9 04	29.5	3.9
33.8	33.8	34.1	32.9	32.4	31.7	31.2	31.7	31.5	31.8	17 06	34.5	8 55	28.4	6.1
34.5	33.5	33.0	32.4	32.4	32.1	32.1	32.1	32.2	31.9	14 31	35.0	9 50	29.2	5.8
33.8	33.0	33.4	33.3	32.6	32.2	32.1	32.1	32.2	32.4	13 38	34.3	9 42	30.4	3.9
34.2	34.2	33.5	32.8	32.6	32.3	32.2	32.2	32.3	32.0	15 45	34.3	9 30	28.7	5.6
32.3	32.8	33.5	32.9	32.2	31.6	30.4	31.3	31.7	31.5	17 30	33.5	9 48	28.4	5.1
34.3	34.8	34.7	33.7	32.6	31.9	31.7	31.3	31.2	32.0	17 13	34.9	8 46	28.8	6.1
33.8	33.6	33.3	32.8	32.6	31.9	31.5	31.4	31.4	31.7					6.8
33.6	33.4	33.2	32.8	32.6	32.0	31.7	31.8	31.8	31.8					6.1
33.1	32.9	33.2	33.0	{ 32.7	32.2	{ 32.2	32.1	32.1	31.9					

## PORTO RICO MAGNETIC OBSERVATORY.

MARCH, 1918.

3° WEST PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	31.2	31.5	31.7	32.1	31.6	31.2	31.5	31.5	30.2	29.5	29.8	30.8	31.9	33.1	34.5
2	31.7	31.7	32.0	32.0	31.5	31.4	31.1	31.3	29.5	28.3	28.1	28.7	30.5	32.5	34.1
3	31.6	31.6	31.9	31.7	31.4	31.2	31.4	31.1	28.8	28.1	29.6	32.1	33.2	34.2	34.7
4*	32.0	32.1	32.1	32.0	31.7	31.6	31.2	31.1	30.2	29.1	28.6	29.3	30.8	31.7	33.2
5†	32.1	32.2	32.1	32.2	32.1	31.4	31.2	31.4	30.4	29.2	28.7	29.3	30.4	31.5	32.1
6†	31.8	32.0	31.9	32.1	31.3	31.1	31.1	31.0	29.9	29.9	29.9	31.1	30.5	31.0	31.9
7	32.1	32.2	32.3	32.2	31.9	31.4	31.3	31.5	30.9	30.4	30.5	32.1	33.2	34.2	34.2
8	30.6	31.8	32.5	34.2	32.7	32.2	32.0	32.1	31.1	30.8	30.4	30.6	32.0	32.7	(33.7)
9	33.0	33.0	32.8	33.3	32.3	31.1	31.2	31.1	30.3	30.3	30.8	31.6	32.1	33.6	34.3
10	32.3	32.3	32.4	32.2	31.4	31.6	31.1	30.6	29.6	29.7	31.0	32.6	33.7	34.9	33.4
11	31.8	31.3	31.2	32.1	31.9	31.2	30.9	30.4	29.7	29.8	30.4	31.5	32.0	33.2	33.4
12	31.9	32.0	30.8	30.3	30.3	31.2	31.1	29.1	28.1	29.0	31.0	31.2	32.1	33.8	34.3
13	32.1	32.1	31.7	31.8	31.8	31.4	31.1	29.7	28.1	28.3	29.7	31.1	32.8	34.0	34.8
14*	32.1	32.2	32.2	32.0	31.4	31.3	30.4	28.1	26.4	26.6	28.3	30.9	32.9	35.3	35.6
15	32.2	32.4	32.4	31.7	31.3	30.9	31.0	29.4	28.3	26.6	29.7	31.2	31.4	32.9	33.9
16	30.9	31.1	31.9	32.3	32.2	31.5	31.0	30.1	27.6	28.1	29.9	30.7	33.4	35.1	35.6
17*	32.3	32.2	32.3	32.3	32.1	32.0	31.0	29.1	27.9	27.6	28.3	29.2	31.3	33.3	35.2
18*	32.3	32.4	32.1	31.9	31.7	31.5	32.5	32.4	29.7	28.6	28.3	28.3	30.0	32.4	34.2
19†	32.4	32.5	32.4	32.6	32.5	32.1	32.1	32.2	31.6	30.3	29.4	29.6	30.6	32.1	33.3
20	32.4	32.5	32.6	32.3	32.1	31.2	33.5	33.7	32.3	32.2	31.9	32.3	33.1	34.5	35.3
21	32.3	32.6	32.5	32.0	31.5	31.2	30.6	29.3	28.4	29.0	29.2	31.3	34.6	35.7	36.2
22	32.4	31.6	31.8	31.3	31.3	31.1	30.7	29.7	29.6	29.5	29.7	30.8	32.6	34.2	35.0
23	32.5	32.4	32.1	32.3	31.9	32.0	31.7	30.1	27.4	26.2	26.4	28.1	30.9	33.2	35.3
24†	32.2	32.2	32.2	32.3	32.1	32.1	31.2	29.7	28.1	27.3	27.3	28.9	31.1	33.4	34.5
25†	32.5	32.4	32.5	32.4	32.0	31.8	31.5	30.1	28.5	28.7	29.7	32.0	34.2	35.7	36.2
26	32.5	32.2	32.1	32.0	31.5	31.1	30.7	29.0	27.2	26.6	27.6	29.9	32.3	34.4	35.2
27	32.7	31.5	32.2	32.2	31.6	31.6	31.2	30.1	28.5	27.8	27.8	28.7	30.2	32.1	34.2
28	32.2	31.5	32.2	32.2	31.6	31.6	31.2	30.5	29.7	30.2	30.2	30.3	31.1	32.6	33.3
29	32.1	32.3	32.1	32.1	32.0	31.5	31.2	30.5	29.7	30.2	30.2	30.3	32.3	34.7	36.3
30*	32.5	32.4	32.2	32.5	32.4	31.5	31.3	30.4	29.1	28.6	29.1	30.3	33.2	35.2	36.0
31	32.9	32.8	32.8	32.8	32.0	31.8	31.1	29.3	29.1	28.9	29.1	30.3	33.2	35.2	36.0
Mean...	32.1	32.1	32.1	32.2	31.8	31.5	31.3	30.6	29.3	28.9	29.4	30.5	32.0	33.5	34.4
Mean*...	32.2	32.3	32.2	32.2	31.9	31.6	31.4	30.6	29.2	28.6	28.8	29.9	31.4	33.1	34.2
Mean†...	32.2	32.3	32.2	32.3	32.0	31.7	31.4	30.9	29.7	29.1	29.0	30.2	31.4	32.7	33.6

APRIL, 1918.

3° WEST PLUS TABULAR QUANTITIES.

1*	32.6	32.6	32.6	32.4	32.2	31.5	30.4	28.9	27.7	26.8	26.8	28.5	31.9	35.1	36.5
2*	31.8	31.9	31.3	31.5	31.0	30.8	29.8	29.0	29.0	28.6	29.3	31.0	33.4	35.0	36.1
3	32.7	32.7	32.6	32.4	32.1	32.0	31.2	29.7	28.1	26.6	26.7	28.1	30.7	33.6	35.6
4	31.6	31.8	31.1	32.0	33.1	31.7	31.0	29.0	27.8	28.3	29.6	31.3	33.5	36.1	36.8
5	31.4	30.6	32.3	31.3	31.3	31.6	31.1	30.1	29.7	28.7	28.7	29.1	30.9	33.3	34.5
6	33.5	31.0	31.8	32.2	31.8	32.8	31.5	29.5	29.9	29.2	31.0	33.2	34.4	35.9	36.6
7	31.9	31.6	30.9	31.8	31.5	30.8	29.5	27.8	27.3	27.7	28.8	30.6	32.7	35.2	36.2
8	32.7	32.1	32.1	32.0	31.7	31.5	30.5	28.7	27.8	28.3	29.9	32.3	35.2	36.7	37.9
9	32.7	32.3	32.3	31.8	31.7	31.6	30.6	29.0	28.3	28.5	29.7	31.3	32.1	35.7	36.2
10	33.5	33.3	32.5	32.2	31.6	31.5	31.1	30.1	28.8	28.6	28.2	28.7	31.2	34.3	36.1
11	32.7	32.8	33.1	32.6	31.6	31.0	30.9	28.0	28.6	30.3	28.7	30.4	34.8	37.1	38.5
12	32.3	32.5	32.2	32.3	32.5	33.4	31.8	30.5	29.1	28.4	28.4	29.9	31.6	34.0	35.3
13†	33.3	32.9	33.1	33.0	32.5	32.3	31.6	30.3	30.3	30.3	30.2	31.3	33.7	35.8	36.6
14†	32.9	33.1	32.8	32.9	32.7	32.6	31.7	30.0	29.6	29.3	29.7	30.7	32.1	34.1	35.7
15†	32.6	33.1	33.0	33.1	32.9	32.9	32.0	30.4	28.5	28.7	28.0	28.9	31.3	35.0	37.0
16*	33.1	33.1	32.9	33.0	32.5	32.9	32.4	31.4	29.3	28.6	27.9	28.3	30.8	32.8	34.0
17*	33.1	33.1	32.9	32.8	32.5	32.4	32.3	31.7	31.2	30.5	29.4	29.4	30.6	32.6	34.2
18	32.7	32.7	32.7	32.3	32.0	31.7	31.2	31.0	30.9	30.0	29.8	30.6	32.3	35.1	36.4
19	31.9	31.7	33.6	32.6	31.9	31.7	31.5	32.3	32.2	31.2	31.1	31.0	31.9	33.3	34.4
20†	33.4	33.1	33.1	33.1	33.1	33.1	32.3	32.0	32.7	33.1	32.8	33.3	34.2	35.5	36.4
21	33.1	33.1	32.9	32.7	32.2	31.6	30.7	29.4	29.2	29.1	(29.9)	(31.4)	(33.6)	(36.0)	(37.5)
22*	33.1	33.1	32.8	32.8	32.3	32.0	30.6	29.0	28.9	28.9	29.0	29.8	31.1	32.6	34.1
23	32.7	32.6	32.1	32.0	32.9	32.0	30.6	29.4	30.4	31.9	33.4	35.0	35.8	36.3	36.4
24†	33.2	33.1	33.1	32.9	32.9	32.4	30.9	29.6	29.6	30.7	32.1	33.8	35.1	36.0	36.2
25	32.7	32.7	32.5	32.3	31.7	31.4	30.5	29.0	29.5	30.4	31.7	32.9	34.4	35.5	36.2
26	31.5	32.0	31.7	32.0	32.7	33.2	31.1	29.7	29.3	30.6	32.7	34.1	36.0	37.1	37.6
27	32.8	32.9	32.9	33.1	32.9	33.1	31.4	30.0	29.1	29.0	29.1	31.3	33.6	35.8	37.3
28	33.5	33.3	33.1	33.1	32.7	32.3	31.4	31.4	30.0	31.3	32.8	33.7	34.5	35.8	36.7
29	31.9	31.3	31.0	31.2	31.7	31.8	31.7	31.6	32.1	31.5	32.6	33.3	33.8	35.1	36.5
30	31.9	31.3	31.0	31.2	31.7	31.8	31.7	31.7	31.6	32.1	31.5	32.6	33.3	33.8	35.1
Mean...	32.6	32.5	32.4	32.4	32.2	32.0	31.1	29.9	29.5	29.4	29.8	31.1	33.0	35.0	36.2
Mean*...	32.9	32.9	32.8	32.8	32.5	32.3	31.4	30.2	29.7	29.6	29.5	30.5	32.4	34.4	35.7
Mean†...	33.1	33.1	33.0	33.0	32.8	32.7	31.7	30.5	30.1	30.4	30.6	31.6	33.3	35.3	36.4

\*Ten least disturbed days.

† Five international quiet days.

## HOURLY VALUES OF DECLINATION.

43

MARCH, 1918.

3° WEST PLUS TABULAR QUANTITIES.

15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.
'	'	'	'	'	'	'	'	'	'	'	'	'	'
35.1	34.5	33.4	32.5	32.3	32.1	32.1	31.7	32.1	32.0	35.3	29.4	5.9	1
34.3	32.8	31.8	32.1	32.1	31.3	31.6	31.3	31.7	31.4	34.4	28.0	6.4	2
35.2	34.9	34.1	32.6	32.0	32.1	31.4	31.0	31.5	32.0	35.2	27.6	7.6	3
34.2	34.3	34.1	33.3	32.9	32.2	32.1	32.1	32.1	31.8	34.5	28.5	6.0	4
32.2	32.8	33.2	33.0	32.9	32.2	31.9	31.9	32.0	31.6	33.3	28.1	5.2	5
32.6	32.7	32.8	32.8	32.8	32.2	32.1	32.1	32.1	31.6	32.9	29.6	3.3	6
33.8	33.3	33.3	32.5	32.8	33.0	28.5	29.6	32.3	32.1	35.0	26.0	9.0	7
(33.8)	33.9	34.2	33.3	33.3	32.7	31.3	31.7	32.9	32.4	34.7	0.00	28.2	6.5
34.2	33.7	33.9	34.0	33.8	33.2	32.8	32.9	32.7	32.6	34.7	30.0	4.7	9
33.0	33.2	33.9	33.5	33.6	32.7	32.3	31.1	31.0	32.2	35.2	29.1	6.1	10
33.9	33.7	34.2	34.7	34.3	33.4	32.2	31.9	32.4	32.1	34.9	29.2	5.7	11
34.2	33.3	33.7	33.7	33.4	31.8	32.2	32.2	32.2	31.8	34.5	27.9	6.6	12
34.8	34.2	33.7	33.4	33.3	33.7	32.5	32.2	32.2	32.1	35.0	27.6	7.4	13
35.6	35.4	34.5	34.0	33.4	32.7	31.9	32.1	32.2	32.0	35.9	25.9	10.0	14
34.1	34.0	33.4	33.1	32.7	32.1	31.2	31.1	30.8	31.6	34.6	25.2	9.4	15
36.3	35.6	34.3	33.7	33.6	33.3	32.7	32.5	32.4	32.3	36.4	27.0	9.4	16
35.9	35.2	33.8	33.4	33.5	32.9	32.6	32.5	32.5	32.0	36.2	27.3	8.9	17
35.3	35.0	34.2	33.9	33.8	33.1	32.7	32.5	32.5	32.1	35.4	27.8	7.6	18
33.2	32.6	33.0	33.2	32.8	32.8	32.7	32.6	32.6	32.2	34.4	29.3	4.1	19
34.8	33.8	33.1	32.5	32.6	32.4	32.4	32.3	32.3	32.8	35.6	23.1	4.5	20
36.4	35.5	34.0	33.0	32.3	32.1	31.8	31.6	31.8	32.3	36.5	27.8	8.7	21
35.4	34.9	34.1	33.2	32.5	32.6	33.0	31.5	31.0	32.1	35.5	29.1	6.4	22
36.4	35.5	34.5	33.5	33.3	33.2	32.8	32.4	32.4	31.9	34.0	25.7	11.3	23
34.8	34.0	33.2	32.5	32.9	33.0	32.8	32.8	32.8	31.8	34.9	27.2	7.7	24
36.1	34.9	33.9	33.0	32.9	32.9	32.6	32.4	32.5	32.6	36.3	28.1	8.2	25
35.2	35.2	34.1	33.8	33.4	33.2	32.9	32.3	32.2	32.1	35.5	29.1	9.2	26
35.2	35.1	34.3	33.8	33.4	33.2	32.9	32.3	32.2	32.0	35.5	25.7	9.8	27
34.7	34.8	34.3	33.8	33.5	33.3	32.8	32.8	32.4	31.8	34.8	13	27.3	7.5
33.4	33.2	33.0	33.2	32.5	32.5	32.8	32.8	32.5	32.0	34.4	26.6	4.3	29
36.5	34.9	33.6	33.5	33.4	33.3	33.2	32.9	32.9	32.5	35.0	28.4	8.1	30
36.1	34.6	33.6	33.2	33.3	33.2	33.2	32.8	32.7	32.5	35.3	28.6	7.6	31
34.7	34.2	33.7	33.2	33.1	32.7	32.2	32.0	32.2	32.1			7.2	
34.6	34.2	33.6	33.3	33.2	32.7	32.5	32.4	32.4	32.0			6.9	
33.8	33.4	33.2	32.9	{ 33.2	32.7 } 32.5	32.3	32.4	32.4	32.0				

APRIL, 1918.

3° WEST PLUS TABULAR QUANTITIES.

36.1	34.9	33.6	32.9	33.1	32.3	32.1	32.5	32.0	31.9	14 30	36.7	9 10	26.2	10.5	1
35.8	34.7	33.7	33.1	33.2	33.2	33.1	32.9	32.8	32.2	14 30	36.2	10 03	28.1	8.1	2
36.1	35.5	34.3	33.4	33.4	31.7	31.8	31.3	31.5	31.8	16 09	36.2	9 40	26.1	10.1	3
37.2	36.6	35.1	34.3	32.9	31.7	31.4	31.3	31.6	32.4	16 00	37.4	8 04	27.7	9.7	4
36.1	36.6	35.4	32.9	33.1	32.7	31.7	32.9	32.2	32.0	16 15	36.8	10 27	28.3	8.5	5
37.1	36.8	34.9	34.1	32.8	31.6	30.8	31.7	31.8	32.7	16 07	37.2	7 28	28.3	8.9	6
36.3	35.3	34.3	33.3	33.3	31.9	32.3	32.9	32.8	31.9	15 30	36.4	8 09	27.0	9.4	7
36.4	35.0	34.2	34.8	34.9	34.7	34.4	33.9	33.2	33.0	15 15	38.3	8 18	27.5	10.8	8
35.7	35.4	35.0	33.0	33.4	33.7	33.6	33.5	33.1	32.5	15 00	36.3	8 25	28.0	8.3	9
36.1	34.3	34.2	34.4	32.3	31.6	32.7	33.2	33.4	32.2	15 00	36.4	10 12	28.0	8.4	10
37.8	36.9	34.4	34.1	33.1	31.7	31.3	31.3	31.8	32.6	15 00	38.6	7 32	26.8	11.8	11
35.3	33.9	33.6	33.8	33.8	33.4	33.4	33.2	33.3	32.4	15 00	35.4	10 43	27.6	7.8	12
36.4	35.1	34.0	33.9	33.6	33.6	33.4	33.1	32.9	33.0	15 00	37.0	8 39	30.0	7.0	13
36.0	35.2	34.8	34.1	33.3	33.4	33.2	32.2	31.5	32.6	15 30	36.0	9 23	29.3	6.7	14
37.1	35.8	34.1	33.8	34.1	33.5	33.6	33.2	33.1	32.7	15 30	37.1	10 48	27.5	9.6	15
34.6	35.2	35.0	34.3	34.1	34.1	33.8	33.1	33.1	32.5	16 00	35.2	10 52	27.4	7.8	16
35.1	35.0	34.6	34.9	34.7	34.3	33.9	33.1	32.7	32.8	16 00	35.2	11 00	28.9	6.3	17
37.2	37.3	37.4	34.8	34.0	32.0	32.1	33.0	32.9	33.0	16 00	37.6	10 03	29.0	8.6	18
35.1	34.7	34.1	33.9	33.2	33.9	33.6	33.1	33.3	32.8	16 00	35.1	1 52	30.5	4.6	19
36.2	34.9	33.2	33.3	33.6	33.4	33.4	33.3	33.1	33.6	15 10	36.8	7 32	32.0	4.8	20
(38.0)	37.5	36.6	35.4	34.8	34.4	33.8	33.4	33.5	33.3	(15 30)	(38.0)	7 30	29.0	9.0	21
34.4	34.0	33.8	33.1	33.2	33.8	33.1	33.1	33.4	32.2	15 39	34.7	8 13	28.3	6.4	22
36.0	34.4	33.4	33.3	33.5	33.5	33.6	33.1	33.2	33.2	14 20	36.9	7 37	29.0	7.9	23
36.1	35.1	34.6	34.4	34.4	34.2	33.1	32.0	32.7	33.3	15 00	36.4	8 09	29.1	7.3	24
36.9	36.9	35.2	33.6	32.4	32.8	31.7	31.0	33.1	32.8	15 46	37.2	7 51	28.3	8.9	25
37.1	34.6	33.9	33.8	34.0	33.8	33.5	33.2	32.5	33.2	14 52	38.0	8 06	28.9	9.1	26
37.4	36.1	34.7	34.1	34.1	33.8	33.3	33.3	33.3	33.1	15 00	37.9	10 44	29.0	8.9	27
37.1	35.3	34.9	34.8	34.2	34.1	33.1	32.1	32.1	32.1	15 30	37.1	7 44	29.8	7.3	28
37.5	36.1	35.4	35.1	34.1	33.2	32.0	32.9	32.0	33.1	15 45	37.8	2 11	30.3	7.5	30
36.3	35.5	34.6	33.9	33.6	33.1	32.8	32.7	32.7	32.7	32.7				8.3	
35.8	35.0	34.1	33.8	33.7	33.6	33.3	32.8	32.7	32.7	32.7				7.4	
36.4	35.2	34.1	33.9	{ 33.9	33.6 } 33.6	33.4	32.9	32.8	33.1	33.1					

## PORTO RICO MAGNETIC OBSERVATORY.

MAY, 1918.

3° WEST PLUS TABULAR QUAN TITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	31.9	33.0	33.5	31.9	32.0	31.8	29.9	30.6	30.3	30.9	32.3	33.9	34.7	35.4	36.1
2	33.1	33.2	33.0	33.2	32.2	31.9	31.0	29.8	28.9	29.8	30.9	31.7	32.8	34.0	35.6
3	33.8	33.1	33.0	33.0	32.5	32.1	31.6	31.1	31.8	32.6	33.1	34.0	35.2	36.0	36.3
4	33.3	33.5	33.4	31.9	31.7	30.9	29.0	29.9	31.2	32.7	33.8	34.6	35.2	36.2	36.5
5	32.3	31.5	31.4	31.8	32.6	31.5	30.2	29.2	30.1	31.3	32.2	33.0	33.4	34.5	36.0
6*	33.7	33.0	33.1	32.5	32.2	31.8	30.2	28.5	28.7	31.2	32.2	32.6	32.7	33.6	35.0
7**†	33.5	33.1	33.3	33.3	32.3	31.9	30.7	28.8	29.1	31.4	33.7	33.8	37.1	37.6	37.5
8**†	33.5	33.3	33.3	33.1	32.1	31.4	29.6	27.4	27.2	28.9	32.2	34.3	36.0	37.0	37.0
9**†	33.7	33.6	33.3	33.3	32.3	31.7	29.9	27.7	27.9	29.7	32.0	33.5	35.4	37.2	37.5
10**†	33.7	33.3	33.3	33.0	32.8	32.2	30.2	27.9	28.4	30.4	32.3	34.8	36.7	38.0	38.0
11	33.6	33.2	33.1	33.6	33.3	32.6	31.0	29.6	29.2	31.0	33.1	35.0	37.3	38.3	38.2
12	33.7	33.5	33.5	33.7	33.1	32.4	31.4	30.6	30.6	31.1	31.6	32.4	33.7	35.0	35.8
13	33.5	33.1	33.5	33.3	33.2	32.8	31.7	30.2	29.9	30.9	32.2	33.6	34.7	35.5	36.0
14	33.4	33.5	33.7	34.0	32.2	32.1	31.4	29.6	29.9	31.6	33.4	35.0	36.3	37.2	36.8
15	33.7	33.7	33.9	33.3	32.6	32.2	31.2	29.4	28.3	29.4	31.6	34.0	35.4	36.0	37.0
16	33.4	33.1	32.9	32.9	32.9	32.2	31.0	29.8	30.8	31.8	32.7	33.8	35.1	36.6	38.0
17	32.9	32.4	33.0	31.8	31.9	31.5	30.2	29.5	30.2	32.2	33.4	34.2	35.5	36.2	37.1
18	33.6	34.4	33.5	32.5	32.2	32.1	30.7	28.8	29.8	30.6	31.9	32.7	33.7	34.2	35.0
19	33.5	33.4	33.6	33.3	32.9	33.3	31.9	30.9	32.5	34.0	35.0	35.9	35.8	35.4	35.5
20	34.3	33.3	32.9	33.4	33.1	32.1	31.2	30.3	30.1	30.8	32.2	34.0	34.9	35.9	36.4
21	33.6	34.1	33.6	34.1	33.4	32.5	31.0	29.5	29.4	30.5	31.8	32.1	32.9	34.0	35.0
22	33.9	33.3	33.2	33.1	32.3	32.3	30.9	28.6	28.6	29.6	31.6	32.6	34.1	35.3	36.3
23	33.9	33.8	33.9	33.6	32.9	32.9	32.0	30.9	31.8	32.9	33.7	33.9	33.7	34.4	35.4
24**†	33.9	33.9	33.6	33.5	33.2	33.2	31.7	30.3	29.9	30.4	30.8	31.4	32.4	34.2	35.9
25**†	33.2	33.2	33.2	33.2	33.2	32.7	31.1	29.1	29.3	30.8	32.9	34.2	34.1	34.5	35.2
26**†	33.9	33.6	33.6	33.6	33.0	32.9	31.8	30.6	30.1	31.2	32.1	32.6	33.7	34.7	36.1
27**†	33.9	33.9	33.8	33.5	33.0	32.4	30.6	29.1	29.6	30.5	31.5	32.9	34.2	35.6	36.4
28**†	33.9	33.9	33.9	33.9	33.9	32.9	31.2	28.9	28.5	29.3	30.5	31.8	33.4	34.9	35.7
29	34.1	34.1	34.4	34.4	33.3	32.6	31.0	30.0	30.1	31.4	33.4	34.9	35.6	36.5	(37.8)
30	33.1	33.2	33.6	33.4	34.2	33.9	31.7	30.0	30.8	31.9	31.8	32.4	33.6	34.8	35.9
31	34.2	33.9	34.0	34.1	34.0	33.0	31.4	30.2	29.7	30.3	31.3	32.2	33.5	35.4	36.4
Mean.....	33.5	33.4	33.4	33.2	32.8	32.3	30.9	29.6	29.8	31.0	32.4	33.5	34.6	35.6	36.4
Mean*....	33.7	33.5	33.4	33.3	32.8	32.3	30.7	28.8	28.9	30.4	32.0	33.2	34.6	35.7	36.4
Mean†....	33.7	33.5	33.5	33.4	32.5	32.1	30.5	28.7	28.8	30.3	32.3	33.4	35.3	36.4	36.9

JUNE, 1918.

3° WEST PLUS TABULAR QUANTITIES.

1*	33.8	33.6	33.6	33.3	33.1	33.0	31.3	29.3	28.7	29.1	30.7	32.2	33.3	34.3	34.8
2†	34.2	33.8	33.8	33.3	33.3	33.2	32.2	31.1	30.9	31.2	31.2	31.3	32.3	33.5	34.4
3†	34.0	33.8	33.6	33.4	33.2	32.9	32.2	30.9	30.9	31.3	30.9	31.1	32.1	33.0	33.8
4†	33.9	33.7	33.3	33.3	32.8	32.3	31.2	30.1	29.2	30.7	32.1	32.4	33.2	33.8	34.4
5*	33.9	33.3	33.2	33.0	32.2	32.0	30.7	29.4	30.0	30.6	31.2	31.2	31.7	32.3	33.9
6	34.3	34.0	34.2	34.1	33.3	32.8	31.1	28.7	27.7	28.9	30.0	31.3	33.5	35.7	36.9
7	34.1	34.2	33.9	33.4	33.7	32.8	30.7	29.1	28.4	29.2	29.8	30.3	31.8	33.8	34.8
8	34.3	34.3	34.0	33.8	33.2	32.2	30.3	28.8	29.2	31.2	33.4	34.6	35.7	36.3	36.1
9	34.7	34.3	34.0	33.9	33.4	33.2	31.6	29.2	28.4	29.6	31.6	33.3	34.8	36.2	37.2
10	33.2	33.2	34.3	35.1	36.0	35.3	33.3	30.2	30.3	33.3	35.2	35.4	37.1	37.8	38.2
11	34.4	34.3	35.2	35.3	35.2	33.7	32.9	30.9	30.0	30.9	31.2	32.2	33.1	36.3	36.3
12	33.8	32.8	33.2	33.8	33.3	33.5	31.7	30.1	30.1	30.7	31.7	32.9	34.1	35.9	37.1
13	34.3	34.3	34.3	34.3	34.3	33.8	32.6	31.7	31.6	32.0	32.5	33.8	35.3	36.9	38.0
14	32.9	33.8	33.3	33.1	33.3	32.8	31.9	32.0	31.9	32.3	33.4	33.5	34.4	35.2	35.5
15	35.6	34.1	33.5	33.3	34.8	32.9	31.2	30.2	30.1	30.7	31.2	32.5	33.7	34.5	36.0
16	34.7	34.0	33.2	33.3	34.1	33.3	31.3	31.0	31.6	32.5	32.2	33.2	35.2	35.9	36.0
17	34.2	33.8	34.7	33.7	33.4	32.2	30.8	29.2	29.1	29.1	30.6	31.9	33.2	34.6	35.7
18	33.7	32.7	33.3	33.6	34.2	33.2	31.4	30.2	30.5	31.1	31.6	32.7	33.7	34.8	35.4
19*	33.9	34.3	33.6	33.4	33.9	33.1	32.1	31.1	31.1	31.6	33.3	33.5	34.6	35.1	35.3
20	34.3	33.9	33.7	33.3	32.9	32.1	30.6	28.9	31.0	34.1	36.2	36.9	36.9	36.5	36.2
21	34.3	34.1	33.6	32.9	32.2	31.4	29.8	28.1	30.0	32.1	33.8	34.7	35.2	35.8	36.3
22*	34.1	34.0	33.8	34.0	34.0	34.0	32.1	30.3	30.3	31.8	33.3	34.7	35.5	35.6	35.2
23*	34.4	34.2	34.0	34.0	34.3	33.0	31.6	30.4	30.9	31.9	33.5	35.0	36.0	36.2	35.6
24	34.4	34.4	34.2	34.0	33.1	32.1	29.9	28.2	29.1	32.1	33.2	33.4	34.0	34.0	33.6
25	34.7	34.2	34.1	33.8	33.3	32.7	31.0	29.1	29.1	30.8	32.5	34.2	35.2	36.2	36.5
26	34.1	33.4	33.4	33.4	33.0	32.1	30.6	29.3	29.1	30.8	33.0	35.0	36.4	36.1	36.4
27	34.3	33.4	33.7	33.5	32.9	31.7	29.9	27.9	29.3	32.1	34.1	35.6	36.5	37.0	37.3
28	34.6	34.2	33.9	33.7	33.2	32.8	31.8	31.1	30.6	31.1	31.8	33.2	34.2	34.9	35.7
29**†	34.4	34.2	34.2	34.3	34.0	33.2	32.1	31.1	30.6	31.1	33.6	34.8	36.4	37.7	38.1
30**†	34.2	34.2	34.2	34.2	34.2	34.0	32.2	30.6	30.6	31.9	32.5	33.5	34.0	34.2	34.1
Mean.....	34.1	33.9	33.8	33.7	33.6	32.9	31.4	29.9	30.0	31.2	32.4	33.3	34.4	35.3	35.8
Mean*....	34.1	33.9	33.7	33.7	33.4	33.0	31.8	30.4	30.3	31.1	32.3	33.0	33.9	34.6	35.0
Mean†....	34.1	33.9	33.8	33.8	33.5	33.0	32.0	30.8	30.4	31.2	32.1	32.6	33.6	34.4	35.0

\*Ten least disturbed days.

† Five international quiet days.

## HOURLY VALUES OF DECLINATION.

45

MAY, 1918.

3° WEST PLUS TABUPAR QUANTITIES.

15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.	
36.1	35.2	34.3	34.0	34.0	34.0	33.0	33.2	33.0	33.1	15 00	36.8	6 48	28.9	7.9 1
36.7	33.8	35.1	34.6	33.7	33.6	33.2	32.9	32.8	32.8	15 30	36.7	9 02	28.9	7.8 2
36.2	36.1	35.4	34.7	34.4	34.2	34.0	33.9	33.4	33.8	14 12	36.5	8 02	30.9	5.6 3
36.4	35.6	35.0	34.8	34.3	34.2	33.8	33.4	32.6	33.5	14 36	36.7	6 38	28.4	8.3 4
36.1	35.6	35.1	35.0	34.8	34.6	34.3	33.6	33.5	33.1	15 00	37.3	7 28	28.8	8.5 5
35.5	35.3	35.3	34.7	34.3	34.5	33.8	33.3	33.5	33.0	16 00	35.6	8 20	28.0	7.6 6
37.2	36.0	34.9	34.5	34.5	34.2	34.1	33.9	33.5	33.7	14 30	37.8	8 00	27.9	9.9 7
36.2	35.1	34.3	34.4	34.5	34.3	33.5	33.3	33.6	33.1	14 00	37.1	8 55	26.9	10.2 8
36.2	34.8	34.3	34.1	33.9	34.1	34.2	33.8	33.2	33.2	14 30	37.9	8 00	27.1	10.8 9
37.2	35.3	34.0	33.5	33.6	33.5	33.7	33.6	33.6	33.5	14 00	38.3	7 43	27.0	11.3 10
37.7	36.5	35.1	34.0	33.7	33.7	33.3	33.3	33.3	33.9	14 36	38.5	7 55	29.0	9.5 11
36.2	35.6	34.7	34.3	33.9	33.7	34.0	33.3	33.5	33.4	15 30	36.3	7 43	29.6	6.7 12
35.6	35.0	34.7	34.3	34.3	34.2	34.3	34.0	34.0	33.5	14 30	36.1	8 00	28.9	7.2 13
36.0	34.7	34.6	34.2	33.4	33.7	34.1	33.8	33.7	33.7	14 00	37.3	7 40	28.3	9.0 14
37.6	37.2	35.7	34.6	35.1	34.7	34.2	34.0	33.7	33.7	16 00	37.7	8 54	27.4	10.3 15
39.3	39.0	38.2	32.9	31.3	34.4	32.5	32.7	32.1	33.7	15 36	40.0	7 55	29.5	10.5 16
37.2	35.8	35.6	34.1	34.6	34.0	34.2	33.6	34.4	33.6	15 09	37.9	7 25	28.9	9.0 17
35.2	35.1	34.2	33.8	33.6	33.3	33.2	33.6	33.4	33.0	15 30	35.3	7 22	28.3	7.0 18
34.6	34.9	34.1	33.6	33.8	33.2	33.9	33.6	33.4	33.8	11 58	36.2	7 26	30.5	5.7 19
36.3	35.6	34.8	34.2	34.4	33.4	33.3	33.4	34.1	33.5	14 58	36.7	7 10	29.9	6.8 20
34.9	34.2	34.0	33.8	33.9	33.8	33.5	33.6	34.1	33.1	14 30	35.2	7 28	28.9	6.3 21
36.2	35.3	34.6	34.4	34.3	33.9	33.7	33.6	33.8	33.2	14 46	36.4	8 57	28.5	7.9 22
36.1	36.0	35.1	34.9	34.2	33.9	34.1	33.9	33.8	33.8	16 00	36.4	7 22	30.8	5.6 23
36.5	36.1	35.8	34.9	34.4	34.5	34.1	33.7	33.2	33.4	16 00	36.6	8 08	29.5	7.1 24
35.6	35.1	34.7	34.3	34.1	34.1	34.2	34.1	33.3	33.0	15 30	35.7	8 10	28.5	7.2 25
35.7	34.6	33.8	33.5	33.7	33.8	33.9	33.9	33.9	34.1	14 45	36.3	8 00	30.0	6.3 26
35.7	34.6	34.1	34.0	34.1	34.2	34.4	34.2	33.9	33.3	14 30	36.4	7 15	29.1	7.3 27
36.1	35.4	34.7	34.2	34.2	34.4	34.3	33.9	33.9	33.2	15 30	36.2	8 22	27.8	8.4 28
(38.4)	38.1	36.7	35.4	35.1	34.6	34.5	33.9	33.1	34.3	16 04	39.3	6 57	29.5	9.8 29
35.5	34.8	34.5	34.6	34.5	34.5	34.3	34.2	33.6	33.6	15 00	36.0	7 36	29.6	6.4 30
36.4	35.4	34.8	34.4	34.8	34.4	34.4	34.1	34.2	33.6	15 00	36.9	7 55	29.5	7.4 31
36.3	35.5	34.9	34.3	34.1	34.1	33.9	33.7	33.6	33.4					8.0
36.2	35.2	34.6	34.2	34.1	34.2	34.0	33.8	33.7	33.3					8.6
36.2	35.0	34.3	34.1	{ 34.2	34.2	34.2	33.9	33.7	33.8	33.4				

JUNE, 1918.

3° WEST PLUS TABULAR QUANTITIES.

35.5	35.2	34.2	34.2	34.3	34.4	34.4	34.2	34.1	33.1	15 24	35.8	8 03	28.4	7.4 1
35.2	34.8	34.3	34.3	34.4	34.7	34.6	34.3	34.1	33.4	16 00	35.3	7 55	30.6	4.7 2
34.5	34.4	34.0	34.1	34.5	34.6	34.5	34.3	34.2	33.2	16 00	34.7	8 14	30.5	4.2 3
34.9	33.6	34.3	34.5	34.9	35.1	34.8	34.3	34.3	33.2	20 20	35.3	8 00	28.7	6.6 4
35.1	35.4	35.3	35.1	35.1	34.8	34.5	34.2	34.2	33.0	16 49	35.6	7 34	29.2	6.4 5
36.7	35.5	34.5	33.9	34.2	34.3	34.3	34.4	34.3	33.3	15 00	37.1	8 55	27.3	9.8 6
35.1	34.6	34.1	34.1	34.4	34.4	34.5	34.3	34.0	32.9	16 00	35.2	8 17	28.2	7.0 7
35.3	34.4	33.4	34.2	34.8	34.5	34.7	34.5	34.5	33.7	14 00	36.6	7 24	27.9	8.7 8
38.2	37.8	35.7	34.8	35.3	34.9	33.8	32.2	33.3	33.8	15 30	38.4	8 56	28.2	10.2 9
38.4	37.4	34.9	34.3	34.5	34.8	35.0	34.3	34.3	34.8	15 24	38.9	7 44	28.4	10.5 10
37.3	36.5	35.4	34.8	34.3	34.3	33.3	32.8	32.2	33.9	16 00	37.3	8 24	29.2	8.1 11
37.3	35.8	35.3	35.1	34.5	34.9	34.8	34.3	34.1	33.8	14 54	37.4	8 45	29.6	7.8 12
38.3	37.5	36.4	35.3	34.6	34.3	34.4	33.5	33.3	34.5	15 30	38.4	8 06	31.2	7.2 13
35.6	35.7	35.3	34.9	34.8	34.8	33.8	33.8	33.4	33.8	16 00	35.8	7 52	31.2	4.6 14
35.9	36.1	35.5	35.0	34.8	34.3	34.2	33.2	33.4	33.6	15 00	36.5	7 54	29.2	7.3 15
36.2	36.6	36.0	36.0	35.2	34.5	34.2	34.2	34.3	34.1	16 00	36.6	7 42	30.7	5.9 16
36.0	35.3	34.6	34.4	34.7	35.1	35.2	34.7	34.2	33.4	15 11	36.3	9 06	28.6	7.7 17
36.1	35.7	35.7	35.5	34.9	34.3	34.5	34.3	34.2	33.7	16 00	36.2	7 56	30.1	6.1 18
35.2	35.1	34.7	34.7	34.9	34.9	35.1	34.7	34.3	33.9	15 52	35.6	7 51	31.0	4.6 19
35.7	35.3	35.3	35.7	35.3	35.0	35.1	34.9	34.7	34.4	12 00	37.1	7 43	28.5	8.6 20
35.8	34.8	34.4	34.7	35.0	35.1	35.3	34.5	34.4	33.7	14 17	36.4	7 28	26.6	9.8 21
34.1	33.7	34.1	34.9	34.9	35.0	35.0	34.6	34.4	33.9	13 00	35.8	8 00	29.5	6.3 22
35.3	34.6	34.1	34.1	34.4	34.7	34.9	34.6	34.6	34.0	13 30	36.2	7 48	30.1	6.1 23
33.4	33.5	33.5	33.9	34.3	34.5	34.8	34.8	34.7	33.2	23 00	34.8	7 57	28.0	6.8 24
36.2	35.6	35.0	34.9	35.0	35.0	35.1	34.6	34.4	33.9	14 30	36.6	8 00	28.8	7.8 25
36.5	36.5	36.4	36.5	35.4	35.0	35.0	34.3	34.1	34.0	15 48	36.6	7 54	28.6	8.0 26
37.2	36.6	36.2	35.7	35.4	35.2	34.6	34.4	34.2	34.2	14 25	37.4	7 48	27.6	9.8 27
35.5	34.9	34.4	34.6	34.3	34.2	34.6	34.4	34.3	33.7	15 00	35.7	8 15	30.6	5.1 28
37.7	36.9	36.1	35.6	35.1	34.7	34.7	34.4	34.2	34.6	15 00	38.1	8 08	30.4	7.7 29
34.6	34.2	34.4	35.0	35.0	35.0	35.1	35.0	34.4	33.8	21 00	35.2	8 00	30.2	5.0 30
36.0	35.5	34.9	34.8	34.8	34.7	34.6	34.2	34.1	33.7					7.2
35.2	34.8	34.6	34.6	34.7	{ 34.5	34.8	34.8	34.5	34.3	33.6				5.9
35.4	34.8	34.6	34.7	{ 34.2	{ 34.1	34.8	34.8	34.6	34.2	33.6				

JULY, 1918.

3° WEST PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	34.8	34.6	34.6	34.2	35.6	32.8	31.3	29.7	30.9	32.1	33.1	33.8	34.6	35.3	34.6
2	34.5	34.2	34.1	34.0	33.3	32.8	31.8	30.9	32.0	33.7	34.3	34.3	34.4	35.1	35.9
3	33.7	34.3	34.5	34.3	33.0	33.3	31.5	29.8	29.5	30.8	33.0	34.5	34.7	35.3	35.7
4*	34.4	34.4	34.9	34.7	33.0	33.1	31.5	30.6	31.2	33.4	35.3	35.6	36.6	36.4	36.2
5*	34.3	34.0	34.0	34.3	34.1	33.0	31.5	30.3	30.2	31.8	33.1	34.3	35.6	36.8	37.0
6*	34.5	34.5	34.4	34.4	33.9	33.5	31.4	29.5	29.5	30.5	32.6	34.6	36.7	37.5	36.8
7†	34.6	34.0	34.3	34.3	33.6	32.9	31.3	30.5	31.5	32.6	33.5	34.6	35.6	35.8	36.2
8	33.6	33.6	33.0	33.5	33.4	32.6	31.2	29.2	29.3	30.3	32.4	34.2	35.8	37.7	39.7
9	34.6	34.6	34.6	33.6	33.3	32.6	30.7	29.6	29.3	31.0	32.1	33.6	36.0	37.7	38.5
10	33.6	34.1	34.0	33.6	33.3	32.6	31.1	29.6	29.5	30.6	32.6	34.3	35.8	37.5	38.7
11	33.6	34.6	34.0	33.9	33.6	32.6	31.5	30.2	30.3	31.0	31.7	34.2	36.3	38.1	39.7
12	34.6	33.6	33.9	33.9	33.3	32.8	31.5	30.2	29.5	30.2	30.5	32.6	33.6	35.9	37.0
13	34.3	34.5	34.6	34.2	33.6	32.9	31.4	30.0	29.5	30.0	31.6	33.4	34.4	35.3	(35.4)
14	34.7	34.6	34.0	33.7	33.5	32.8	31.8	30.5	29.7	30.2	31.3	33.1	34.6	35.6	37.5
15	34.6	34.8	34.6	34.4	34.6	32.6	31.2	30.5	30.9	32.2	33.3	34.3	35.0	35.6	35.6
16*	33.9	34.2	34.3	34.2	33.9	33.8	32.3	30.6	31.4	32.5	33.5	34.6	35.5	36.5	37.4
17*	34.5	34.5	34.4	33.9	33.5	33.5	32.1	30.5	30.4	31.3	32.5	34.0	35.5	36.9	38.2
18	33.5	33.8	33.5	34.1	33.7	32.6	31.2	30.4	30.9	30.8	32.1	33.3	35.0	36.5	37.3
19†	34.5	34.5	34.4	34.2	33.5	33.2	31.8	30.4	30.4	31.1	31.8	33.5	34.5	36.2	37.5
20†	34.5	34.3	34.3	33.8	33.5	33.5	32.6	31.4	31.8	32.5	33.3	33.7	36.3	37.8	37.9
21†	34.6	34.5	34.3	33.9	33.5	32.9	31.7	30.6	30.0	31.1	33.5	36.2	37.5	37.3	36.6
22†	34.8	34.5	34.2	34.1	33.5	33.1	31.6	30.1	29.6	30.9	31.5	32.7	34.5	35.7	36.2
23*	34.5	34.7	34.7	34.8	34.2	33.2	32.7	31.5	29.9	30.3	31.4	33.5	34.5	36.5	38.6
24	34.5	34.4	34.6	34.5	33.5	32.9	31.4	30.6	33.5	36.4	37.5	38.6	38.7	37.5	37.5
25	34.2	33.5	33.5	34.4	34.6	34.5	32.5	30.5	29.4	28.4	30.1	33.6	36.7	39.4	40.3
Mean....	34.3	34.3	34.4	34.3	33.8	33.2	31.8	30.4	30.4	31.4	32.6	34.1	35.4	36.7	37.4
Mean*...	34.4	34.4	34.4	34.2	33.7	33.3	31.9	30.6	30.4	31.5	32.8	34.3	35.7	36.8	37.2
Mean†...	34.6	34.4	34.3	34.1	33.5	33.1	31.8	30.6	30.7	31.6	32.7	34.1	35.7	36.6	36.9

AUGUST, 1918.

3° WEST PLUS TABULAR QUANTITIES.

1†	34.5	34.6	34.6	34.6	34.5	34.6	32.5	30.0	28.4	29.4	31.1	33.3	34.9	35.7	35.6
2	35.1	34.8	34.5	34.5	32.6	32.2	31.5	30.2	29.9	30.2	32.5	35.2	37.3	37.8	
3	33.5	34.0	34.4	34.5	33.9	33.5	31.8	30.7	30.5	31.4	33.5	35.5	36.8	37.5	38.2
4	34.9	34.5	34.4	34.2	33.5	33.2	31.6	30.0	29.4	29.5	30.5	31.9	35.0	37.0	37.5
5	34.8	34.5	34.3	33.5	33.2	32.5	30.5	29.4	29.7	31.4	33.3	34.5	36.5	37.5	37.5
6	34.7	34.5	34.2	33.8	33.6	34.2	31.7	28.6	28.4	29.9	32.1	34.7	36.9	38.3	39.5
7	34.7	34.5	33.7	33.6	33.8	33.5	30.8	28.9	28.4	28.7	30.4	32.1	33.5	35.2	36.7
8	34.5	34.4	35.3	34.5	34.5	33.8	32.0	29.9	30.4	31.6	34.0	35.8	37.0	37.5	36.9
9	35.0	34.8	35.8	35.2	35.2	34.5	31.9	30.5	30.9	30.6	30.4	31.4	33.5	36.4	37.5
10*	34.7	34.6	34.5	34.5	34.1	33.5	32.5	31.0	31.5	32.6	33.6	35.3	36.4	37.4	38.1
11	34.6	34.6	34.5	35.2	34.5	34.5	33.2	30.8	29.9	30.0	31.7	33.0	34.9	37.5	39.4
12	34.5	33.9	35.8	34.5	33.6	33.5	32.7	30.9	29.5	29.7	30.4	31.5	33.7	35.1	35.8
13	34.9	35.0	34.5	34.4	34.4	34.2	33.7	32.5	34.4	35.4	36.8	38.3	39.7		
14	34.9	34.7	34.7	34.2	33.8	33.9	33.1	30.7	31.5	32.5	34.4	36.1	36.5	36.5	36.4
15	34.8	35.5	35.2	34.8	34.8	34.6	33.1	31.7	31.0	31.6	32.7	35.1	36.7	38.5	41.6
16	36.8	36.3	36.9	35.7	34.7	35.2	33.6	30.3	30.3	30.8	33.2	35.3	36.6	36.9	36.6
17	35.5	35.6	35.5	34.9	34.2	33.6	31.8	30.5	30.8	32.0	34.4	36.6	38.4	39.5	39.3
18*	35.1	34.8	34.7	34.6	34.0	33.6	32.6	31.5	32.9	35.6	37.9	39.7	39.7	38.8	
19*	35.4	34.9	34.6	34.6	33.8	33.4	31.5	29.5	31.1	32.9	34.0	35.6	36.7	37.8	38.1
20*	35.6	34.9	34.8	34.7	33.9	32.9	30.3	28.1	29.7	32.2	34.8	35.5	36.6	36.6	36.8
21*	36.8	36.4	35.7	35.3	34.6	33.9	31.5	28.0	28.6	31.1	34.6	36.8	38.3	38.8	37.9
22*	34.8	35.3	35.6	34.8	33.6	33.3	30.4	27.6	27.6	29.8	32.7	35.6	38.6	40.3	
23*	34.8	35.3	34.8	34.6	33.6	33.6	31.8	28.0	27.4	29.5	32.2	34.9	36.9	37.9	
24	35.3	35.0	34.8	34.6	35.6	32.7	30.4	28.2	29.2	32.6	34.4	35.7	36.9	39.7	39.5
25	34.6	34.5	34.6	35.1	35.6	35.0	32.7	31.7	30.0	28.5	29.4	31.5	33.6	36.6	37.6
26	35.9	35.0	35.8	37.4	35.4	34.8	34.2	31.5	32.3	32.6	34.6	35.3	35.9	37.6	38.4
27	35.7	35.4	35.3	35.2	35.0	34.7	33.3	30.7	30.7	32.3	33.9	34.7	35.8	36.8	37.6
28	35.6	35.4	35.6	35.4	34.9	34.7	33.2	31.4	32.0	34.6	35.9	36.9	37.8	38.6	38.7
29*	35.6	35.4	35.6	35.3	34.8	34.4	32.8	30.8	30.5	31.4	32.4	33.6	34.8	36.6	38.0
30*	35.6	35.4	35.3	35.3	34.8	34.4	32.8	30.8	30.5	31.4	32.4	33.6	34.8	36.6	38.0
31	35.4	35.0	34.9	34.6	34.5	34.3	32.5	30.7	32.6	34.7	36.6	37.8	38.6	38.7	40.1
Mean....	35.1	35.0	35.0	34.7	34.3	33.8	32.1	30.1	30.3	31.6	33.4	35.0	36.6	37.7	38.1
Mean*...	35.3	35.2	35.0	34.8	34.2	33.8	31.9	29.6	30.0	31.9	33.9	35.7	37.1	37.9	38.1
Mean†...	35.5	35.2	35.0	34.9	34.3	34.0	32.2	30.0	30.3	32.1	34.0	35.8	36.9	37.7	37.7

\*Ten least disturbed days.

† Five international quiet days.

## HOURLY VALUES OF DECLINATION.

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JULY, 1918.

3° WEST PLUS TABULAR QUANTITIES.

15h-16h	16h-17h	17h-18h	18h-19h	19h-20h	20h-21h	21h-22h	22h-23h	23h-24h	Mean.	Maximum.	Minimum.	Range.	Day.	
34.3	33.8	34.1	34.9	35.0	34.6	34.9	34.4	34.4	33.8	13 11	35.4	7 42	28.6	6.8
35.6	34.9	34.6	34.6	35.4	35.0	35.1	35.2	34.4	34.2	14 53	35.9	7 29	30.7	5.2
36.6	36.6	35.8	35.5	35.0	34.7	34.6	34.5	34.2	34.0	15 44	36.7	7 48	28.7	8.0
35.7	35.3	35.3	35.4	35.6	35.2	34.9	34.6	34.4	34.5	13 00	36.6	7 11	30.0	6.6
36.6	35.6	35.0	35.0	35.5	35.3	35.0	34.6	34.5	34.2	14 00	37.1	8 18	29.5	7.6
36.4	35.6	35.2	34.6	34.7	34.6	34.6	34.6	34.6	34.1	13 43	37.6	8 05	28.5	9.1
35.8	35.6	35.3	35.6	35.6	35.6	35.3	34.0	33.6	34.2	15 00	36.3	6 57	30.2	6.1
39.6	37.6	36.0	35.5	35.6	34.6	34.6	34.6	34.6	34.3	15 00	39.8	7 45	28.5	11.3
38.5	37.3	35.6	35.6	35.6	35.4	34.6	34.2	34.3	34.1	14 48	38.7	8 27	28.5	10.2
38.7	37.6	36.6	35.6	33.4	33.4	33.5	34.1	34.3	34.1	15 30	38.7	7 54	28.8	9.9
39.4	37.6	37.1	36.6	35.6	35.4	34.8	34.4	34.4	34.6	15 00	39.7	8 00	28.7	11.0
37.8	37.3	36.0	35.6	35.6	35.6	35.3	34.6	34.2	34.0	15 42	37.8	8 19	28.5	9.3
(35.6)	35.7	35.8	36.3	36.3	35.9	36.0	35.6	35.1	34.1	19 12	36.5	8 25	28.5	8.0
37.6	36.6	35.8	34.9	35.6	35.5	35.3	34.1	34.4	34.1	15 15	37.9	7 53	29.5	8.4
36.0	35.6	35.6	34.7	34.7	34.7	35.2	34.6	34.3	34.2	15 42	36.1	7 16	29.5	6.6
37.5	37.2	36.5	35.7	35.5	35.2	35.2	34.7	34.5	34.6	15 21	37.6	7 24	30.4	7.2
38.2	37.5	36.5	35.8	36.0	35.5	35.0	33.8	33.5	34.5	14 30	38.4	7 32	29.9	8.5
37.1	36.3	35.5	35.5	35.5	35.2	34.5	34.5	34.5	34.1	15 00	37.5	8 00	29.6	7.9
37.6	37.3	36.5	35.5	35.5	34.9	35.4	34.5	34.7	34.3	15 17	37.7	7 33	30.1	7.6
37.9	37.5	36.5	35.6	35.5	35.4	35.2	34.8	34.6	34.8	15 00	37.9	7 52	31.1	6.8
36.5	35.4	34.6	34.8	35.2	35.3	35.3	35.2	34.8	34.4	12 54	37.5	8 15	29.8	7.7
36.5	35.9	35.5	35.3	34.9	35.2	35.1	34.7	34.6	34.3	15 30	36.5	8 18	29.2	7.3
38.6	38.1	36.6	35.8	35.2	34.9	35.1	34.5	34.5	34.5	15 00	38.6	8 57	28.7	9.9
36.9	36.6	35.7	35.4	35.2	35.2	35.2	34.5	34.8	35.2	12 00	39.0	7 17	30.0	9.0
39.2	37.4	36.3	35.5	35.7	35.5	35.3	35.2	34.9	34.6	15 00	40.6	8 55	27.4	13.2
38.8	37.2	35.8	34.5	34.5	34.7	34.8	33.8	34.5	34.5	14 20	39.5	7 53	27.8	11.7
36.6	36.2	35.3	34.6	33.8	33.9	34.2	33.5	33.9	33.9	14 51	37.3	7 27	28.7	8.6
36.8	37.6	34.7	33.5	33.5	33.2	33.2	34.2	34.3	33.9	16 40	37.9	8 23	28.8	9.1
38.8	39.4	37.6	36.7	36.4	34.3	35.8	34.5	34.3	34.2	16 00	39.7	9 20	28.5	11.2
37.5	36.7	36.5	36.1	35.6	34.7	35.4	35.0	34.8	35.3	14 38	38.4	8 00	31.4	7.0
39.6	(38.4)	(36.9)	(35.9)	35.2	34.7	34.8	34.5	34.5	35.1	15 24	39.7	8 30	30.7	9.0
37.4	36.7	35.8	35.4	35.2	35.0	34.9	34.5	34.4	34.3					8.6
37.2	36.5	35.8	35.4	35.4	35.2	35.1	34.6	34.5	34.4					7.8
36.9	36.3	35.7	35.4	{ 35.3	{ 35.1	{ 35.0	{ 34.7	{ 34.6	{ 34.3					

## 3° WEST PLUS TABULAR QUANTITIES.

35.4	34.6	35.4	35.7	35.5	35.2	35.2	35.2	35.2	34.0	14 00	35.8	8 30	28.2	7.6
37.7	37.2	36.5	36.1	35.3	36.3	35.9	35.2	35.9	34.7	13 45	37.9	8 45	29.6	8.3
38.0	37.5	37.1	36.5	35.7	36.1	35.5	35.4	35.2	34.9	15 30	38.2	8 00	29.9	8.3
37.4	37.3	37.1	36.5	36.4	35.6	35.8	35.5	35.4	34.3	14 36	37.6	8 22	28.7	8.9
36.5	36.0	36.0	35.7	36.1	35.7	35.6	35.0	34.8	34.4	14 00	37.6	7 51	28.4	9.2
39.5	38.4	37.0	36.1	36.3	35.5	35.4	35.2	34.9	34.7	14 37	39.8	8 28	27.5	12.3
38.1	36.7	36.2	35.6	34.5	35.0	35.1	35.1	35.3	33.8	15 36	38.4	7 21	28.2	10.2
36.1	36.1	35.8	35.3	34.6	34.5	34.6	34.5	34.3	34.5	14 14	37.9	7 48	29.0	8.9
37.5	36.7	35.9	35.0	35.5	34.7	35.1	34.7	34.6	34.3	15 00	37.8	7 45	29.7	8.1
39.5	38.7	37.2	36.5	35.7	35.3	34.8	35.2	34.8	35.1	16 00	39.7	7 06	30.7	9.0
39.7	38.5	36.6	35.6	35.6	35.6	35.5	35.1	34.8	34.7	15 30	39.9	9 12	29.0	10.9
36.2	36.5	36.6	36.5	35.8	35.7	35.5	35.4	34.9	34.1	17 00	36.8	8 15	28.8	8.0
37.9	36.5	35.8	35.5	35.5	35.6	35.5	35.1	35.1	35.6	12 28	40.7	7 34	31.7	9.0
35.6	35.8	35.5	35.5	34.7	35.5	35.4	34.5	34.8	34.6	12 36	36.7	7 35	29.4	7.3
43.0	40.5	37.8	37.5	37.5	37.3	36.5	34.2	35.5	35.9	16 00	46.1	8 00	30.9	15.2
36.4	36.4	35.6	34.9	35.3	35.5	35.6	35.3	35.6	35.0	2 38	37.9	7 08	27.0	10.9
38.8	37.9	36.6	35.6	35.7	36.0	35.6	34.9	35.0	35.4	14 00	39.7	7 48	30.0	9.7
37.9	36.7	35.9	35.7	35.8	35.9	35.9	35.6	35.6	35.8	13 00	39.8	7 19	31.0	8.8
37.7	36.7	36.1	35.7	36.0	35.9	35.8	35.5	35.2	34.9	14 30	38.3	7 20	29.2	9.1
35.9	34.3	33.6	34.0	34.6	35.6	36.2	36.7	34.4	14 54	36.8	7 20	27.7	9.1	20
36.6	34.8	34.0	34.4	35.4	35.4	35.2	35.3	35.0	34.8	13 30	38.9	7 47	27.4	11.5
40.4	38.3	36.4	35.3	35.6	35.6	35.4	35.0	35.2	34.9	14 37	41.1	7 44	26.7	14.4
37.5	36.1	35.4	34.9	35.5	35.6	35.7	35.6	35.6	34.4	14 00	38.3	8 08	26.7	11.6
38.9	37.8	36.2	34.9	34.7	33.8	34.6	33.6	33.5	34.7	13 54	39.9	7 43	27.6	12.3
37.6	-----	-----	-----	-----	-----	-----	-----	-----	-----	16 00	37.9	9 25	27.8	10.1
36.9	36.7	36.6	35.8	34.7	35.1	34.9	34.9	36.0	35.5	15 54	37.0	6 59	30.5	8.2
37.7	37.6	36.6	35.6	35.6	34.9	35.3	35.6	35.5	35.4	3 20	38.7	8 00	30.1	7.6
37.6	36.8	36.3	35.9	35.7	34.7	35.6	35.2	35.0	35.0	15 30	37.7	8 00	30.1	7.6
38.9	37.8	36.5	35.6	35.3	35.6	35.6	35.6	35.6	35.7	15 00	39.0	7 42	30.7	8.3
38.3	37.6	36.8	36.2	35.8	35.8	35.6	35.6	35.6	35.0	15 00	38.4	7 52	30.4	8.0
39.8	38.7	38.9	38.8	37.8	38.6	36.7	35.7	35.6	36.3	14 45	40.7	7 27	30.5	10.2
37.9	37.1	36.3	35.8	35.6	35.6	35.5	35.2	35.2	34.9	-	-	-	-	9.7
37.8	36.6	35.7	35.4	35.5	35.5	35.5	35.4	35.4	34.9	-	-	-	-	9.7
37.2	36.1	35.6	35.5	{ 35.7	{ 35.6	{ 35.6	{ 35.6	{ 35.6	{ 34.9	-	-	-	-	31

## PORTO RICO MAGNETIC OBSERVATORY.

SEPTEMBER, 1918.

3° WEST PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	34.8	34.4	34.8	33.7	33.8	32.7	30.3	28.6	30.0	32.8	35.7	37.3	38.3	39.4	37.9
2	35.1	35.3	34.7	34.8	34.7	33.1	31.0	30.4	31.8	34.0	34.9	35.4	36.1	36.5	35.9
3	34.9	34.7	34.7	33.8	33.7	32.5	30.6	30.6	32.7	35.0	36.7	38.6	39.0	38.8	37.4
4	36.4	36.2	35.8	34.7	33.7	33.7	32.1	32.3	33.0	34.1	35.5	36.7	37.7	37.3	36.3
5	35.7	35.7	35.7	34.9	34.2	34.3	31.9	36.6	31.6	33.0	34.8	37.1	39.0	39.9	39.8
6	35.7	35.7	35.6	34.8	34.4	33.1	30.6	28.6	30.9	34.5	37.0	39.9	41.8	41.8	40.4
7	36.0	36.1	35.7	34.7	34.7	33.9	30.9	29.3	30.0	32.1	34.7	37.3	39.0	40.4	40.8
8	34.7	35.7	34.8	34.3	35.7	34.7	31.5	29.7	30.5	32.3	34.7	36.8	38.5	39.7	40.7
9*	35.7	36.0	36.1	36.0	34.7	33.7	31.5	29.6	30.1	31.6	33.7	35.7	37.7	39.7	40.8
10*	35.7	35.3	35.7	34.8	34.4	33.7	31.9	29.9	29.9	30.7	32.7	35.4	37.4	39.6	40.0
11**†	35.7	35.5	35.0	34.7	34.4	33.8	32.7	30.7	30.4	31.3	31.4	34.5	37.1	39.4	39.8
12**†	35.6	35.5	35.3	34.8	34.7	34.7	33.6	31.9	31.6	32.4	33.7	34.8	36.7	37.9	38.8
13**†	35.0	35.7	35.7	34.9	33.9	33.7	32.7	31.7	32.2	34.7	35.7	36.7	37.7	37.2	36.9
14**†	35.7	35.3	34.7	35.0	34.0	34.4	34.3	32.7	32.7	32.8	34.4	35.7	36.8	37.8	38.5
15†	35.7	36.0	35.7	34.9	34.6	34.3	32.7	31.7	30.8	31.2	32.3	33.8	34.6	34.9	35.0
16	35.2	35.0	35.5	35.6	35.5	35.6	33.8	32.8	32.9	33.8	35.3	36.8	39.1	39.9	37.9
17	35.0	35.6	34.8	35.1	34.8	34.8	33.8	32.8	32.1	33.8	35.8	37.8	39.9	38.9	38.9
18	35.7	34.8	32.5	32.8	32.0	33.7	33.9	31.8	32.4	34.8	36.4	37.8	36.5	38.4	37.8
19	33.8	35.6	36.8	35.2	33.8	36.4	36.1	31.7	30.2	31.7	32.9	34.8	35.8	36.8	36.8
20	34.9	36.2	36.5	35.8	36.9	35.8	34.9	34.6	34.4	35.8	37.8	38.8	39.2	38.7	38.7
21	36.8	34.0	36.6	37.5	37.6	34.8	32.1	32.4	30.3	34.6	37.0	37.8	38.6	39.9	40.3
22	35.8	35.8	36.0	35.8	35.4	34.8	32.8	30.5	30.4	31.6	33.7	35.8	37.6	38.8	39.8
23	35.8	35.7	35.8	35.8	35.2	34.8	32.8	30.7	29.5	29.9	31.5	34.6	37.5	39.1	39.9
24*	36.0	36.5	36.9	36.5	36.1	34.6	34.8	33.3	32.0	32.0	33.8	36.2	38.9	38.9	38.6
25**†	35.8	35.8	35.3	35.8	36.1	35.1	34.7	33.7	32.8	32.8	33.6	33.9	34.8	35.8	35.8
26**†	35.9	35.8	35.8	36.5	35.3	34.9	34.8	33.5	32.5	33.5	33.8	34.8	35.8	36.8	36.8
27*	35.0	36.7	35.1	34.6	34.8	34.5	33.8	33.8	33.8	34.9	34.9	35.8	35.8	35.3	35.0
28	35.1	35.1	35.1	34.9	34.7	33.9	33.6	32.8	30.9	32.9	35.0	36.2	36.8	37.2	37.0
29	35.1	34.8	34.8	34.8	34.8	34.8	34.9	34.8	34.5	35.2	35.6	35.8	36.0	36.9	37.8
30	37.0	37.0	36.4	35.8	35.1	34.9	34.6	33.8	33.8	34.5	35.8	37.1	37.8	37.8	37.7
Mean....	35.5	35.6	35.5	35.1	34.8	34.3	33.0	31.7	31.7	33.1	34.6	36.3	37.6	38.4	38.3
Mean*....	35.6	35.8	35.6	35.4	34.8	34.3	33.5	32.1	31.8	32.6	33.8	35.3	36.9	37.8	38.1
Mean†....	35.7	35.7	35.4	35.3	35.0	34.6	33.7	32.3	31.6	32.2	33.0	34.4	35.8	37.0	37.2

OCTOBER, 1918

3° WEST PLUS TABULAR QUANTITIES.

1	36.0	36.1	36.0	35.9	37.1	37.3	34.9	32.9	32.9	33.9	34.9	35.5	35.9	36.0	36.4
2	36.2	36.1	36.1	36.9	35.3	35.1	34.8	33.6	33.9	34.9	35.6	36.4	36.9	37.1	36.6
3	37.2	36.0	35.1	35.7	36.0	36.1	34.3	33.1	33.2	34.1	36.0	37.6	38.4	39.6	39.4
4	36.2	35.2	35.2	35.9	36.5	35.2	34.7	33.1	31.9	32.6	34.0	35.1	36.2	38.0	39.1
5	36.0	35.9	35.9	36.5	36.0	35.1	34.8	33.1	31.6	30.5	32.0	34.2	37.1	39.1	40.1
6	37.2	37.0	36.4	36.2	36.2	35.9	34.8	32.9	31.5	30.9	32.1	34.9	37.2	40.1	41.3
7	36.6	36.3	36.4	36.8	35.9	35.5	34.5	32.9	33.1	34.2	36.1	37.6	38.2	39.1	39.2
8	36.1	36.7	36.9	36.0	35.9	36.2	34.2	32.7	32.9	31.9	32.4	36.1	39.0	41.6	41.7
9	36.4	34.9	36.6	36.7	35.9	35.2	33.8	33.0	31.4	31.6	33.4	35.0	36.8	38.0	39.0
10*	36.1	36.1	36.1	36.0	35.9	35.2	34.9	33.6	31.9	31.9	33.1	34.7	36.1	38.0	40.1
11**†	36.1	36.2	36.1	36.1	35.8	35.4	35.2	34.6	33.4	32.5	32.9	33.6	35.6	37.1	38.4
12**†	37.0	36.7	36.2	36.0	36.0	35.8	35.5	34.7	(33.0)	(32.9)	(33.7)	35.3	36.9	37.9	37.9
13**†	36.2	36.0	36.0	35.9	35.9	35.6	35.3	34.7	33.0	32.9	33.6	34.1	35.6	37.5	39.8
14**†	36.1	36.6	36.6	35.7	35.7	35.7	34.8	33.7	33.4	32.6	33.5	34.1	34.7	35.7	36.7
15	35.9	35.9	35.9	35.5	35.8	35.8	35.0	35.8	34.7	33.6	33.4	32.9	34.7	35.0	35.8
16	34.7	33.6	32.9	35.9	36.4	39.6	39.9	37.7	38.1	38.9	37.8	37.3	36.7	36.0	37.5
17	35.9	35.8	36.0	36.5	35.9	34.9	34.7	32.9	31.7	32.9	33.7	35.4	35.7	35.2	36.7
18	36.7	36.7	35.9	35.7	35.8	35.7	35.9	35.8	35.9	35.9	35.9	36.0	36.0	35.9	36.5
19	36.8	36.7	36.1	36.5	35.8	35.7	34.5	32.4	32.0	31.8	35.2	37.8	40.2	39.1	38.4
20	36.7	36.8	36.6	36.7	37.3	37.3	36.5	34.9	33.6	34.0	36.4	37.5	37.7	36.7	36.3
21	36.7	36.7	36.7	37.0	36.6	35.7	34.3	32.0	32.3	33.9	35.6	36.7	37.7	38.1	38.5
22	36.2	36.7	36.7	37.5	36.4	35.7	34.0	32.6	31.5	32.2	34.3	35.7	37.2	38.7	39.5
23	36.7	36.7	36.7	36.7	37.1	37.0	35.5	34.3	33.3	33.8	35.8	37.7	38.3	38.9	39.6
24	35.7	36.0	36.6	37.0	36.8	36.3	36.0	35.2	33.8	33.9	34.7	35.1	35.9	36.9	37.8
25	36.0	35.9	35.9	35.9	35.7	35.5	34.7	33.9	33.9	33.2	32.8	34.1	35.6	36.9	38.0
26*	35.9	36.0	35.9	35.8	35.9	35.8	35.7	34.5	33.6	33.7	34.6	35.7	36.8	37.4	37.8
27**†	36.3	35.9	35.9	35.9	35.9	35.9	35.9	35.4	34.7	34.8	34.8	35.8	35.9	36.0	35.9
28*	35.9	36.0	36.0	36.0	35.9	35.8	35.0	33.8	33.2	33.7	34.7	36.5	37.0	36.8	37.5
29*	36.0	36.1	35.9	35.8	35.9	35.9	35.0	33.7	32.9	33.2	33.9	35.6	36.0	36.0	36.9
30*	36.2	36.1	36.2	36.0	36.0	35.7	34.9	33.7	33.5	33.9	34.7	35.4	35.7	36.2	36.2
31	36.6	35.6	34.7	34.7	36.9	37.3	35.7	35.7	35.3	36.5	36.7	37.7	37.8	37.1	37.1
Mean....	36.3	36.1	36.0	36.2	36.1	36.0	35.2	34.0	33.3	33.5	34.5	35.7	36.7	37.4	38.1
Mean*....	36.2	36.2	36.1	35.9	35.9	35.7	35.2	34.2	33.3	33.2	34.0	35.1	35.9	36.7	37.7
Mean†....	36.3	36.3	36.2	35.9	35.9	35.7	35.3	34.6	33.5	33.1	33.7	34.6	35.6	36.6	37.7

\*Ten least disturbed days.

†Five international quiet days.

## HOURLY VALUES OF DECLINATION.

SEPTEMBER, 1918.

## 3° WEST PLUS TABULAR QUANTITIES.

15h-16h	16h-17h	17h-18h	18h-19h	19h-20h	20h-21h	21h-22h	22h-23h	23h-24h	Mean.	Maximum.	Minimum.	Range.	Day.	
36.9	36.5	36.2	36.6	36.5	35.2	35.7	35.7	35.5	35.0	13 11	39.7	7 18	26.6	13.1 1
35.5	34.7	35.0	36.3	36.6	35.6	35.7	35.7	35.7	34.8	13 44	36.6	7 21	29.1	7.5 2
36.4	35.8	35.9	36.2	35.8	35.7	35.8	36.4	35.7	35.3	12 39	39.4	7 18	29.6	9.8 3
36.1	36.4	36.4	35.4	35.2	33.4	34.4	35.6	35.7	35.2	12 19	37.8	7 01	30.9	6.9 4
37.8	36.7	36.0	36.4	35.7	35.7	35.7	35.7	35.7	35.6	13 23	40.0	7 00	29.9	10.1 5
38.8	37.6	36.4	35.8	35.6	35.5	35.5	35.5	35.1	35.9	12 44	41.9	7 22	27.6	14.3 6
40.4	38.4	37.0	35.8	35.7	34.7	34.4	35.4	35.7	35.5	14 52	41.0	7 34	28.6	12.4 7
40.1	37.9	36.8	36.1	36.0	35.7	34.8	35.1	35.7	35.5	14 48	40.8	7 09	28.6	12.2 8
40.5	37.9	36.7	36.5	36.7	36.2	36.0	35.8	35.7	35.6	15 06	40.9	7 39	28.9	12.0 9
39.5	37.9	36.8	36.5	36.0	35.7	35.7	35.7	35.7	35.3	14 41	40.1	7 55	29.4	10.7 10
39.7	37.8	36.7	35.8	35.8	36.0	35.7	35.7	35.7	35.2	14 30	40.0	8 30	29.6	10.4 11
38.0	37.7	36.7	36.6	36.4	35.7	35.7	35.5	35.0	35.4	14 34	38.9	7 32	31.4	7.5 12
36.7	35.9	35.7	36.5	36.3	36.1	35.9	35.7	35.7	35.4	12 32	37.8	8 06	30.9	6.9 13
37.8	37.5	36.7	36.7	36.2	36.0	35.8	35.7	35.7	35.5	15 54	38.6	7 44	31.6	7.0 14
35.5	36.2	36.2	36.0	36.0	35.2	34.7	34.8	34.5	34.5	16 39	36.4	8 58	30.6	5.8 15
36.7	35.8	35.8	34.7	34.9	35.8	34.2	36.1	35.6	35.6	13 30	40.0	8 24	32.1	7.9 16
37.9	37.4	36.9	36.1	36.4	36.7	36.5	35.8	35.8	36.0	12 54	40.1	8 50	31.1	9.0 17
37.2	36.0	35.8	35.8	35.8	35.6	35.4	34.8	33.2	35.0	13 30	38.7	2 56	31.4	7.3 18
36.5	35.8	35.4	35.8	36.3	34.5	35.1	35.6	36.1	35.0	2 49	37.8	8 33	28.7	9.1 19
37.8	37.0	35.7	35.1	35.8	35.1	34.8	35.6	35.8	36.2	13 22	39.6	8 22	33.8	5.8 20
40.1	36.8	35.0	34.5	35.6	34.9	34.8	35.1	35.8	36.0	14 03	40.5	8 25	28.0	12.5 21
38.9	37.5	36.9	36.8	36.1	35.6	34.2	34.8	34.8	35.4	14 42	39.9	7 51	29.7	10.2 22
39.8	38.9	37.6	36.8	36.9	36.1	36.0	35.8	36.0	35.5	14 12	40.0	8 30	29.4	10.6 23
38.0	37.7	36.7	36.1	35.8	35.8	35.1	35.5	35.5	12 54	39.5	8 55	31.5	8.0 24	
35.8	36.3	36.8	36.7	36.2	35.9	35.8	35.8	35.3	17 43	36.9	9 00	31.9	5.0 25	
36.8	36.5	36.5	36.1	36.1	36.2	36.0	35.9	35.9	35.5	14 18	37.0	8 22	31.7	5.3 26
35.8	36.8	36.9	36.8	36.8	36.4	36.1	35.9	35.8	35.4	1 33	37.8	8 13	32.9	4.9 27
38.0	38.9	39.6	38.6	37.8	37.2	36.8	36.1	36.0	35.8	17 10	39.9	8 24	30.7	9.2 28
37.9	37.8	38.9	37.8	36.9	36.0	34.9	34.8	36.4	35.9	18 00	39.3	8 50	33.8	5.5 29
37.4	37.2	37.4	37.0	36.1	36.0	36.8	36.8	34.8	36.2	12 23	37.9	8 51	32.8	5.1 30
37.8	37.0	36.6	36.3	36.2	35.7	35.5	35.6	35.5	35.5					8.7
37.9	37.2	36.6	36.4	36.3	36.0	35.9	35.7	35.6	35.5					7.8
37.2	36.9	36.6	36.2	{36.1 36.2}	35.9 36.0	35.8	35.6	35.7	35.2					

OCTOBER, 1918.

## 3° WEST PLUS TABULAR QUANTITIES.

36.9	36.3	37.0	36.9	36.0	35.9	36.1	36.1	37.0	35.8	5 07	38.0	8 35	31.9	6.1 1
36.9	36.1	36.3	36.9	36.1	35.1	35.9	36.1	36.0	35.9	3 11	37.5	7 15	33.2	4.3 2
39.1	38.0	36.5	37.0	36.9	36.1	35.8	35.7	35.2	36.3	14 06	40.0	7 55	32.5	7.5 3
39.1	38.1	37.7	36.0	36.7	36.5	36.1	35.8	36.1	35.9	14 59	40.1	8 16	31.0	9.1 4
40.0	38.7	37.2	36.9	35.9	35.0	35.0	35.9	36.6	35.8	15 12	40.2	9 30	29.1	11.1 5
41.1	39.9	38.0	36.3	35.9	35.9	35.0	35.2	35.9	36.2	14 55	41.4	8 53	30.8	10.6 6
39.2	38.4	37.9	37.0	36.6	36.2	36.0	35.9	36.0	36.5	15 00	39.2	9 53	32.0	7.2 7
41.1	40.7	39.8	38.4	36.9	35.9	35.0	34.1	34.4	36.5	13 56	42.0	10 01	31.3	10.7 8
39.3	38.8	38.0	37.6	37.3	37.1	36.4	36.4	36.0	36.0	15 26	39.6	8 44	31.0	8.6 9
40.1	38.6	37.9	37.1	36.9	36.5	36.4	36.2	36.3	36.1	15 00	40.3	9 06	31.7	8.6 10
39.3	39.3	38.7	38.0	37.3	36.9	36.8	36.4	36.7	36.2	16 00	39.7	10 00	32.3	7.4 11
38.2	38.0	37.7	37.1	36.7	36.6	36.0	36.0	36.1	36.1	16 00	38.4	9 30	32.9	5.5 12
40.6	40.1	39.6	39.6	38.7	38.7	36.8	36.8	36.5	36.6	15 36	40.8	9 01	32.6	8.2 13
37.7	38.2	38.1	37.7	36.9	36.7	36.3	36.1	36.0	35.8	16 43	38.3	9 50	32.4	5.9 14
36.8	38.4	38.1	37.5	36.7	36.4	34.7	34.7	34.5	35.6	16 37	38.6	9 29	31.9	6.7 15
38.9	38.7	38.7	38.0	37.2	36.9	36.0	36.0	36.2	37.1	6 05	42.3	2 06	31.4	10.9 16
37.7	37.7	37.8	37.3	36.7	36.8	36.8	36.4	36.7	35.7	17 41	38.0	8 51	30.8	7.2 17
36.7	36.9	36.7	37.0	36.9	36.7	36.7	36.7	36.6	36.3	16 38	37.0	7 09	35.5	1.5 18
37.8	37.8	37.7	36.7	36.8	36.8	36.0	35.9	36.0	36.2	12 20	40.4	9 15	30.3	10.1 19
36.4	36.8	37.4	37.0	36.5	35.7	35.7	36.0	36.0	36.4	5 05	38.9	9 12	33.2	5.7 20
38.9	38.7	38.7	38.0	37.2	36.9	36.0	36.0	36.2	36.5	15 50	39.0	7 52	31.4	7.6 21
39.5	38.6	37.1	36.2	35.9	36.2	36.4	36.5	36.7	36.2	15 00	39.7	9 05	31.3	8.4 22
39.5	38.3	37.6	37.1	37.0	36.4	35.8	35.7	35.7	36.7	15 09	39.7	8 56	32.8	6.9 23
38.7	39.7	39.0	37.8	37.6	37.4	36.8	36.0	36.0	36.5	16 27	39.9	8 39	33.5	6.4 24
38.3	39.0	38.7	38.0	37.9	37.4	36.7	36.4	36.1	36.1	16 24	39.3	10 23	31.3	8.0 25
37.7	37.8	38.0	37.7	36.9	36.4	36.3	36.0	36.3	36.2	16 30	38.0	9 03	32.6	5.4 26
36.3	36.7	37.4	37.4	36.9	36.7	36.2	36.0	35.9	36.0	17 51	37.6	8 23	34.7	2.9 27
37.9	38.7	37.8	37.0	36.8	36.5	36.5	36.2	36.4	36.2	16 21	38.7	8 08	32.7	6.0 28
37.3	37.5	37.3	36.7	37.2	36.5	36.3	36.3	36.4	35.8	17 10	37.7	8 42	32.7	5.0 29
36.9	37.0	37.6	37.5	36.6	36.0	36.0	35.9	36.0	36.3	17 12	37.7	8 31	32.7	5.0 30
36.7	36.7	36.6	36.7	35.2	36.0	35.9	35.9	36.0	36.3	5 09	39.8	2 58	33.6	6.2 31
38.4	38.2	37.8	37.3	36.8	36.4	36.2	36.0	36.1	36.2					7.1
38.2	38.2	38.0	37.6	37.1	36.6	36.4	36.2	36.2	36.1					6.0
38.4	38.5	38.3	38.0	{37.3 37.3	36.8 36.9}	36.5	36.3	36.4	36.1					

## PORTO RICO MAGNETIC OBSERVATORY.

NOVEMBER, 1918.

3° WEST PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	36.0	36.2	36.5	36.5	35.9	35.8	36.0	35.8	35.4	35.2	35.8	36.7	37.7	38.0	38.0
2*	36.9	36.8	36.7	36.7	37.0	36.7	35.5	33.6	32.6	33.1	34.6	35.7	36.7	37.0	37.0
3*	36.5	36.4	36.6	36.6	36.1	35.8	35.5	34.7	32.8	32.6	33.4	34.5	35.8	36.7	37.0
4	36.6	36.5	36.5	36.5	36.0	35.9	35.9	35.5	34.2	33.6	33.7	34.9	35.8	36.7	37.2
5†	36.7	36.4	36.4	36.5	35.9	35.9	35.8	34.7	33.2	32.8	33.6	35.7	37.0	37.7	38.2
6†	36.0	36.4	36.6	36.5	36.1	36.0	35.9	35.7	33.9	33.3	33.7	35.1	36.7	37.8	38.3
7†	36.3	36.4	36.5	36.6	36.2	35.9	35.9	36.1	34.7	33.3	33.4	34.7	35.9	36.8	37.6
8†	36.2	36.2	36.3	35.1	35.9	35.8	35.9	35.7	34.8	33.8	33.9	35.2	36.2	36.9	37.7
9†	35.9	36.1	36.7	36.7	36.1	36.0	36.0	35.7	34.2	33.8	33.9	34.8	35.9	36.7	37.6
10	35.8	35.9	36.0	36.3	36.3	36.1	36.7	36.4	35.5	33.9	33.5	33.9	34.9	35.8	36.6
11	36.0	35.9	36.2	35.9	28.4	37.5	36.6	36.1	34.9	34.9	35.0	35.7	37.0	38.7	39.6
12	35.8	37.4	36.4	36.7	39.7	40.9	39.3	38.8	36.9	34.8	33.7	34.7	36.0	37.3	38.0
13	37.4	36.1	37.3	38.9	37.8	36.3	36.4	35.8	35.7	33.8	33.1	33.8	34.4	35.0	35.8
14	36.7	36.7	36.8	36.8	36.8	37.8	38.7	37.9	35.7	33.9	34.4	35.7	36.5	37.0	38.0
15	36.7	36.9	36.7	37.9	38.0	36.9	36.3	35.7	34.0	33.5	34.4	36.2	37.4	38.5	38.7
16	36.7	36.8	37.0	38.0	37.9	37.8	37.3	36.7	35.9	35.8	36.5	37.3	38.4	39.7	39.5
17	36.7	37.7	37.0	36.9	36.8	36.7	36.7	35.8	33.6	32.8	33.5	35.1	36.7	37.9	38.4
18	36.4	36.7	37.4	37.4	36.4	36.1	36.4	35.9	34.6	33.7	34.3	36.4	37.6	38.5	38.7
19	37.3	36.7	36.6	36.5	36.4	36.0	35.5	34.5	33.3	32.8	35.0	36.7	39.5	39.5	39.4
20	36.5	37.4	36.6	36.7	36.5	35.7	35.7	33.6	32.4	31.8	33.4	35.4	37.0	37.6	38.3
21	37.3	37.3	37.3	37.4	37.7	36.6	36.5	35.6	34.3	33.6	34.6	36.4	38.2	39.2	39.2
22	36.6	36.8	37.4	37.4	36.5	36.5	35.8	35.4	33.6	33.3	34.1	35.4	36.6	37.6	38.5
23	35.5	35.4	38.1	34.3	35.6	36.4	37.6	36.4	34.4	33.4	32.6	35.4	35.6	36.8	38.0
24	35.7	35.5	36.1	36.1	35.5	35.5	36.1	35.6	36.4	33.4	33.4	33.6	35.5	36.6	38.2
25	36.4	36.6	36.7	36.4	36.2	36.4	36.5	36.4	35.0	34.3	34.3	35.0	36.4	36.8	37.4
26†	36.6	36.5	36.5	36.5	36.5	36.5	36.5	36.4	34.4	33.4	33.3	34.3	35.5	36.5	37.5
27†	36.4	36.2	36.4	36.3	36.3	36.4	36.5	36.5	35.7	35.4	35.4	36.1	36.9	37.5	38.1
28*	36.4	36.4	36.5	36.4	36.4	35.5	35.4	34.4	33.3	32.6	34.1	36.3	37.5	38.5	38.7
29	36.4	36.4	36.4	36.4	36.2	36.4	36.3	35.7	34.5	33.7	34.1	35.4	37.1	38.4	40.4
30	36.9	36.5	36.4	36.4	36.4	35.9	35.4	35.5	34.4	33.5	34.4	36.4	38.1	39.4	38.7
Mean....	36.4	36.5	36.7	36.6	36.6	36.5	36.4	35.8	34.5	33.7	34.1	35.4	36.6	37.6	38.1
Mean*....	36.4	36.4	36.5	36.4	36.2	36.0	35.9	35.4	34.0	33.4	33.9	35.2	36.4	37.2	37.8
Mean†....	36.4	36.4	36.5	36.5	36.2	36.1	36.1	35.9	34.4	33.6	33.9	35.2	36.4	37.3	37.9

DECEMBER, 1918.

3° WEST PLUS TABULAR QUANTITIES.

1	37.4	37.4	37.5	37.7	38.5	37.6	37.2	36.9	36.4	36.2	36.4	38.0	38.5	38.4	38.7
2	36.4	36.9	37.1	36.9	36.7	36.4	36.4	36.0	34.6	34.4	35.2	36.4	37.0	37.4	37.5
3	36.9	37.5	37.1	37.6	36.6	36.8	37.4	38.4	37.3	35.2	35.4	36.2	37.5	37.4	38.0
4*	36.6	37.1	37.5	36.0	36.2	36.5	36.5	36.4	35.2	33.7	35.5	34.4	35.5	37.3	37.4
5†	36.7	36.7	36.8	36.9	36.7	36.1	36.4	36.5	35.4	34.4	34.4	35.5	36.5	37.5	38.5
6†	36.4	36.5	36.5	36.5	36.5	36.4	36.5	36.3	35.5	34.6	33.6	35.4	37.4	38.6	39.5
7	36.4	36.5	36.5	37.4	37.4	36.3	36.7	36.5	35.5	34.9	36.1	36.5	36.5	36.6	36.9
8	36.5	38.5	41.2	40.4	40.5	40.6	39.5	40.4	40.5	36.8	37.3	36.4	36.3	37.3	37.7
9	39.5	36.8	37.4	37.7	38.4	39.3	39.3	37.6	34.9	34.4	34.4	35.7	37.2	38.6	39.0
10	36.7	38.5	38.4	39.5	38.4	40.5	39.4	37.7	35.5	34.4	33.6	35.4	36.3	37.8	38.5
11	36.4	36.5	37.5	37.5	38.2	37.5	37.5	36.7	34.6	33.3	32.5	33.8	36.5	38.4	38.8
12	36.6	36.6	37.4	37.4	37.4	37.1	36.7	36.4	34.4	33.1	33.0	34.5	36.6	38.4	38.4
13*	37.0	37.2	37.1	37.0	37.4	37.3	37.2	36.2	34.3	33.3	32.6	35.0	37.4	38.9	38.6
14*	36.7	36.5	36.8	37.6	37.5	38.3	37.4	36.4	34.0	33.0	33.8	35.5	36.4	36.4	36.5
15*	37.3	37.5	37.3	37.3	37.3	37.0	36.6	35.5	35.7	34.4	33.6	34.4	35.6	36.2	36.1
16*	37.4	37.5	37.5	37.4	37.0	36.5	36.4	36.3	34.5	33.6	34.8	36.6	37.7	38.7	38.8
17	37.6	37.4	37.3	37.5	36.7	36.6	36.9	36.5	35.7	36.4	36.4	37.6	38.6	38.8	38.3
18	37.4	37.7	38.2	38.1	36.4	35.9	35.4	34.4	33.6	34.3	35.6	36.9	38.3	38.5	38.6
19	37.5	37.4	37.3	36.7	36.7	36.3	36.0	37.2	36.3	35.4	36.4	36.7	37.4	38.6	40.1
20	36.8	36.5	36.7	37.1	37.2	36.5	36.4	36.4	34.9	34.4	35.2	36.4	37.9	38.8	38.5
21	37.5	37.2	37.4	36.8	37.3	37.7	37.5	37.4	37.3	36.4	36.4	36.5	37.7	38.3	38.4
22	37.5	38.1	38.0	38.7	38.5	37.9	37.7	37.7	37.2	36.9	37.4	38.4	39.2	39.0	38.5
23	38.1	38.4	39.0	37.7	37.7	37.7	38.0	37.6	36.4	35.6	36.4	38.0	40.0	40.7	40.6
24	37.5	37.5	37.6	37.8	38.2	37.5	37.1	36.4	35.4	34.6	35.5	36.7	37.7	38.4	38.3
25	37.6	38.4	38.6	38.4	37.6	37.5	37.4	37.4	35.7	34.6	38.4	36.4	37.5	39.3	38.4
26	36.7	36.6	36.5	37.5	37.0	37.1	37.5	36.5	35.1	34.5	35.4	36.1	37.1	38.8	39.0
27	37.5	37.5	37.7	37.5	37.5	36.8	36.7	36.7	36.4	35.5	35.0	35.5	36.6	38.1	39.4
28*	37.4	37.4	37.4	37.4	37.4	37.2	37.2	36.7	36.4	35.5	34.7	35.7	37.4	38.4	39.3
29*	37.5	37.5	37.4	37.5	37.4	37.4	37.3	37.4	36.4	35.0	33.8	35.0	37.0	37.5	38.4
30*	37.4	37.4	37.5	37.5	37.5	37.4	37.2	36.6	35.4	34.3	34.3	35.5	37.6	39.2	39.5
31*	37.5	37.5	37.6	37.7	37.5	37.4	37.4	37.2	36.1	35.6	35.2	36.4	37.7	38.7	39.3
Mean....	37.2	37.3	37.5	37.5	37.5	37.3	37.2	36.9	35.7	34.8	35.0	36.0	37.3	38.2	38.5
Mean*....	37.1	37.2	37.3	37.2	37.2	37.1	37.0	36.6	35.3	34.2	34.0	35.4	37.0	38.0	38.3
Mean†....	37.1	37.1	37.1	37.2	37.1	36.9	36.9	36.7	35.6	34.6	34.2	35.4	37.2	38.2	39.0

\*Ten least disturbed days.

†Five international quiet days.

## HOURLY VALUES OF DECLINATION.

51

NOVEMBER, 1918.

3° WEST PLUS TABULAR QUANTITIES.

15h-16h	16h-17h	17h-18h	18h-19h	19h-20h	20h-21h	21h-22h	22h-23h	23h-24h	Mean.	Maximum.	Minimum.	Range.	Day.	
37.8	36.8	36.6	36.6	36.6	35.9	36.2	36.7	37.3	36.5	14 00	38.7	9 41	34.9	3.8
37.1	36.9	37.1	36.9	36.7	36.3	36.0	36.2	36.1	36.1	4 53	37.6	8 16	32.6	5.0
37.3	37.0	37.1	37.0	36.6	36.0	36.2	36.3	35.9	36.0	16 00	37.5	9 06	32.5	5.0
37.6	37.7	37.9	37.0	36.5	35.9	36.1	36.2	36.4	36.1	17 16	38.0	9 36	33.6	4.4
38.0	37.7	37.7	37.4	36.5	36.0	35.9	35.9	36.0	36.2	15 00	38.3	9 42	32.8	5.5
38.0	37.7	37.3	36.8	36.4	35.9	35.8	35.9	36.0	36.2	15 00	38.7	9 51	32.8	5.6
37.7	37.0	37.0	36.8	36.5	35.9	35.8	36.0	36.0	36.0	15 08	37.8	9 31	32.9	4.9
38.3	37.9	37.6	37.0	36.8	36.0	35.8	35.8	35.9	36.1	16 00	38.4	9 36	33.4	5.0
37.7	37.4	37.6	37.2	36.7	36.0	35.8	35.8	35.8	36.1	15 42	37.8	8 57	33.8	4.0
37.0	37.9	37.6	36.7	35.8	35.2	33.8	34.8	35.7	35.8	16 54	38.3	10 02	32.7	5.6
38.3	37.8	37.0	35.7	35.2	34.8	33.5	34.7	35.7	36.3	14 37	39.8	21 40	30.8	9.0
38.7	38.0	36.3	36.0	35.7	35.7	35.9	36.0	36.5	36.5	5 05	41.1	10 34	33.1	8.0
36.9	37.0	37.7	36.0	36.8	36.6	35.9	36.8	36.6	36.2	3 16	39.5	10 00	32.6	6.9
37.6	37.7	37.8	36.7	36.5	35.9	35.7	36.0	36.5	36.7	6 48	39.4	9 00	33.8	5.6
38.8	38.5	36.7	37.0	36.3	35.8	36.1	36.0	36.7	36.7	14 28	38.9	9 00	32.9	6.0
39.3	39.5	36.9	36.9	36.7	34.9	35.8	35.8	36.3	37.2	13 38	39.9	20 32	33.6	6.3
38.3	38.3	37.4	37.0	36.5	36.3	36.4	36.4	36.7	36.5	15 52	38.5	8 39	32.6	5.9
38.4	37.5	37.3	36.7	36.5	36.5	36.5	36.1	36.5	36.6	14 29	38.9	9 49	33.3	5.6
39.0	37.7	38.2	36.7	35.8	35.5	35.7	36.2	36.5	36.5	13 50	39.6	9 08	32.0	7.6
37.5	(36.9)	36.7	36.7	35.9	36.4	36.4	36.4	36.6	36.0	14 17	38.4	9 17	31.2	7.2
38.7	38.4	37.7	37.4	36.4	36.4	35.8	36.1	36.4	36.9	13 36	39.4	9 23	33.3	6.1
38.5	38.4	38.4	38.1	37.1	36.4	35.6	35.4	35.4	36.4	16 00	38.6	9 08	33.0	5.6
38.2	38.5	38.5	37.8	37.4	36.6	36.4	35.7	35.5	36.3	2 32	39.2	10 20	32.1	7.1
38.6	39.2	38.0	37.4	37.4	36.4	35.9	36.4	36.4	36.2	16 26	39.4	10 06	32.4	7.0
37.8	38.2	38.2	37.5	37.0	36.4	36.5	36.4	36.4	36.5	16 18	38.3	9 15	34.1	4.2
37.7	37.8	37.6	37.5	36.7	36.5	36.2	35.6	35.7	36.2	16 18	38.1	10 06	33.2	4.9
37.9	37.6	37.5	37.2	36.7	36.4	36.3	36.2	36.2	36.6	14 00	38.2	10 00	35.4	2.8
38.5	38.4	37.7	37.6	36.9	36.4	36.5	36.4	36.4	36.4	14 30	38.9	9 17	32.5	6.4
40.5	39.4	38.8	38.4	38.1	37.4	36.4	35.2	36.8	36.9	15 06	41.5	9 23	33.0	5.5
38.6	38.1	37.5	37.5	36.4	35.6	35.6	35.7	36.4	36.5	13 43	40.4	9 10	33.3	7.1
38.1	37.9	37.5	37.0	36.6	36.1	35.9	36.0	36.3	36.4					5.9
37.8	37.5	37.4	37.1	36.6	36.1	36.0	36.0	36.0	36.2					4.9
37.9	37.6	37.4	37.1	{36.6}	{36.1}	{36.6}	{36.1}	{36.1}	36.1					

DECEMBER, 1918.

3° WEST PLUS TABULAR QUANTITIES.

39.4	37.9	37.5	37.1	35.4	35.1	35.5	35.7	36.3	37.2	15 09	39.7	9 39	34.3	5.4
37.5	37.4	37.3	37.1	36.5	36.5	36.5	36.5	36.7	36.6	16 00	37.6	9 25	34.4	3.2
38.6	38.5	38.4	38.1	37.2	36.8	36.5	36.5	36.5	37.2	15 28	38.8	9 36	34.4	4.4
38.1	38.1	37.9	37.2	36.9	36.5	36.5	36.3	36.4	36.4	15 30	38.2	9 50	33.4	4.8
38.5	37.5	36.6	36.5	36.4	36.0	36.0	35.9	36.4	36.4	15 11	38.7	9 52	34.2	4.5
39.2	38.3	37.4	36.1	36.4	36.3	36.1	35.7	35.7	36.5	14 33	39.6	9 54	33.3	6.3
36.9	37.1	37.7	37.7	35.7	35.5	36.0	34.1	36.3	36.4	17 14	38.0	22 11	33.5	4.5
37.5	37.4	36.5	35.7	36.2	35.7	36.4	35.5	35.7	37.8	4 18	42.5	22 36	35.2	7.3
38.4	36.5	36.5	36.8	35.0	34.3	36.4	36.2	36.4	36.9	0 44	40.7	19 56	32.4	8.3
37.4	37.1	37.5	37.5	36.5	35.7	36.3	36.0	37.1	37.1	5 42	41.5	10 33	33.3	8.2
39.4	38.6	38.1	36.6	36.8	36.5	36.5	36.0	36.4	36.7	15 22	39.5	10 10	32.3	7.2
38.5	37.7	37.4	37.5	36.5	36.4	36.4	37.2	36.6	36.6	15 42	38.6	9 34	32.5	6.1
38.3	37.4	37.5	37.4	35.7	36.4	36.4	36.7	36.6	36.6	13 49	39.4	10 00	31.9	7.5
36.8	37.4	37.5	36.7	36.6	36.5	36.8	36.9	37.3	36.5	5 08	38.5	9 19	32.6	5.9
36.4	36.4	37.1	37.2	36.6	36.5	36.5	36.8	37.4	36.4	2 58	37.8	10 23	33.5	4.3
38.2	37.5	37.5	37.1	36.5	36.5	36.6	37.1	36.9	36.9	14 06	39.2	9 36	33.3	5.9
37.5	37.0	37.4	37.5	36.7	36.7	36.7	36.7	37.3	37.2	12 30	39.0	8 55	34.4	4.6
38.2	37.3	37.3	36.9	37.0	36.3	36.4	36.4	36.4	36.7	3 04	39.3	8 55	33.4	5.9
40.4	39.4	38.4	37.5	37.5	36.6	36.3	35.6	36.4	37.3	15 08	40.5	9 09	34.3	6.2
38.5	38.4	38.4	38.4	37.5	37.5	37.2	36.7	37.4	47.1	13 53	39.3	9 02	33.4	5.9
38.5	39.1	38.6	38.7	38.4	37.6	37.6	37.6	37.2	37.6	16 00	39.1	9 43	35.9	3.2
38.5	39.1	38.5	38.6	38.4	38.1	38.0	37.6	37.7	38.1	12 11	39.4	9 23	36.6	2.8
40.4	39.2	38.6	38.4	37.6	37.5	37.5	37.5	37.5	38.2	14 15	41.2	9 45	35.5	5.7
38.4	38.5	38.5	38.5	38.2	37.5	37.5	37.4	37.4	37.4	16 00	38.6	9 06	34.3	4.3
38.9	37.7	38.4	37.8	36.5	36.5	36.2	36.5	36.6	37.4	15 17	39.5	9 43	31.6	7.9
38.5	38.4	35.9	37.8	37.4	36.5	36.9	37.0	37.3	37.0	13 37	39.5	9 46	34.1	5.4
39.5	39.4	38.4	38.2	37.8	37.5	37.4	37.4	37.4	37.4	16 00	39.6	10 51	34.9	4.7
29.4	38.9	38.4	37.7	37.4	37.5	37.5	37.4	37.4	37.4	15 20	39.6	10 00	34.7	4.9
38.5	38.3	37.7	37.7	37.4	37.4	37.4	37.4	37.4	37.1	15 30	38.5	10 30	33.5	5.0
39.3	38.5	38.3	38.2	37.6	37.3	37.3	37.4	37.4	37.3	14 09	39.6	9 21	34.1	5.5
39.4	38.5	38.4	37.6	37.4	37.2	37.3	37.3	37.4	37.5	15 43	39.4	10 53	34.6	4.8
38.5	38.0	37.7	37.5	37.0	36.6	36.7	36.6	36.8	37.1					5.5
38.4	37.9	37.8	37.3	36.8	36.8	36.8	37.0	36.9	36.9					5.5
39.0	38.3	37.7	37.2	{37.2}	{37.0}	{36.9}	{37.0}	{36.9}	37.0					

## PORTO RICO MAGNETIC OBSERVATORY.

JANUARY, 1917.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	585	586	586	589	590	593	592	588	587	592	597	(602)	603	602	602
2*	612	606	608	606	606	608	609	611	612	614	622	631	627	615	602
3†	605	604	601	600	601	605	604	606	612	614	626	637	635	621	610
4	599	618	620	625	623	615	604	598	583	578	558	559	552	534	523
5	470	477	489	500	513	524	531	533	537	536	538	553	532	534	523
6	553	556	556	558	560	567	575	579	583	585	582	584	586	585	561
7	556	556	565	573	570	(574)	(577)	(581)	585	583	586	588	568	571	564
8	573	575	576	578	577	(577)	(578)	(578)	579	574	571	576	595	595	582
9	579	578	578	581	583	582	582	587	591	593	589	592	596	577	564
10	579	578	578	581	583	582	582	587	591	593	589	592	597	595	595
11	579	581	584	586	587	589	589	590	587	586	587	589	578	567	575
12	579	584	581	584	585	584	592	595	598	598	602	608	607	592	566
13	574	584	585	588	590	(591)	(592)	(594)	596	590	587	582	577	575	573
14*	583	587	582	591	599	595	591	594	592	584	583	584	582	581	582
15†	592	597	599	599	601	602	601	607	607	585	567	566	568	574	580
16	602	600	602	605	606	605	603	608	612	606	602	604	597	585	586
17*	584	586	589	591	592	592	592	597	601	596	592	593	591	595	603
18†	582	585	590	591	594	597	601	606	610	608	602	594	589	583	581
19	602	602	603	604	607	608	611	618	628	642	641	642	644	638	638
20	591	598	600	602	603	604	603	608	620	619	613	618	618	614	603
21	595	601	602	606	608	609	611	618	621	618	610	599	578	578	574
22	579	577	582	592	593	593	594	602	607	595	587	575	573	568	572
23	597	600	601	606	612	614	615	603	576	560	558	558	571	574	574
24	582	586	587	589	593	597	599	605	605	603	592	577	577	584	581
25	600	597	611	603	605	605	604	604	608	606	596	578	553	565	574
26	586	599	596	599	603	600	599	599	604	592	583	589	596	589	584
27*	599	599	600	599	598	599	602	612	615	601	573	551	547	556	574
28†	593	594	594	596	597	597	592	594	594	592	591	591	582	574	576
29*	592	593	593	596	600	602	601	605	616	611	602	599	589	585	588
30*	577	578	584	588	596	601	597	600	600	595	585	585	582	580	578
31	593	594	602	598	600	604	604	605	601	598	591	585	583	574	567
Mean....	583	585	587	589	592	594	594	598	600	596	592	591	588	585	582
Mean*....	592	593	594	596	598	600	599	603	606	600	594	593	589	586	587
Mean†....	593	595	595	596	599	601	600	604	608	602	598	597	593	587	587

FEBRUARY, 1917.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

1*†	590	591	591	593	595	597	600	603	(594)	(586)	585	588	590	585	586
2	590	591	595	597	597	594	596	593	584	579	576	568	557	561	570
3*	590	587	590	591	593	593	595	599	599	588	583	582	581	577	572
4*	590	590	590	593	593	593	593	600	607	606	603	595	589	568	573
5*	586	585	586	588	589	589	593	599	604	597	588	585	576	572	576
6	584	584	482	584	585	588	581	597	601	597	599	594	589	586	581
7	582	577	576	581	584	585	585	588	591	597	596	588	591	584	576
8	570	566	568	570	575	576	578	587	592	589	584	586	588	581	574
9†	582	585	587	588	589	589	588	589	590	589	587	582	579	579	578
10*	570	575	579	581	582	585	586	590	591	589	584	572	572	567	562
11	576	578	584	585	583	583	586	590	594	594	594	590	582	579	572
12†	578	580	580	584	585	586	587	590	593	590	580	582	585	584	584
13†	586	584	588	589	589	(591)	(593)	(596)	599	593	581	576	570	564	566
14	585	591	594	596	594	596	598	607	609	608	602	593	584	584	588
15	571	573	575	579	587	592	593	606	625	622	612	609	594	560	507
16	512	512	520	531	545	546	551	560	569	574	575	575	573	565	562
17	572	573	574	575	577	580	588	597	602	601	599	596	588	578	567
18	525	526	533	543	549	560	569	573	590	594	585	577	571	566	556
19	553	546	548	552	560	571	572	580	589	593	589	586	584	580	574
20	571	563	575	589	583	584	599	601	609	579	581	581	581	581	574
21	575	576	579	583	585	588	589	595	592	586	583	581	578	583	572
22	581	585	582	586	585	585	584	590	596	601	604	607	604	601	601
23	581	583	587	585	581	582	586	594	601	601	597	589	584	586	586
24	579	575	576	578	580	581	588	594	604	609	607	600	590	590	588
25*	583	582	584	585	589	589	590	594	599	601	595	583	569	576	579
26	581	585	583	595	585	585	587	600	612	613	612	599	593	588	579
27†	580	582	582	585	587	588	591	596	599	596	596	595	584	582	584
28	580	585	586	586	588	589	593	606	614	620	626	624	615	610	604
Mean....	575	575	578	581	583	584	588	593	598	597	593	589	584	579	575
Mean*....	584	584	586	588	589	590	592	596	598	594	588	584	580	575	576
Mean†....	583	584	586	588	589	590	592	595	595	591	586	585	582	579	580

\* Ten least disturbed days.

† Five international quiet days.

## HOURLY VALUES OF HORIZONTAL INTENSITY.

53

JANUARY, 1917.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.	
599	603	603	597	602	605	607	604	606	597	24 00	612	0 50	583	29 1
590	590	596	600	600	601	605	607	608	608	12 00	633	15 50	586	47 2
605	603	606	607	609	606	602	596	595	609	11 48	639	23 33	593	46 3
398	390	392	394	418	419	450	478	...	3 51	629	18 30	374	255 4	
530	540	543	544	550	552	553	552	552	530	11 42	588	0 00	463	95 5
568	569	569	569	557	569	564	565	(565)	569	13 24	594	20 00	551	43 6
559	565	564	559	569	560	555	554	563	563	13 25	598	18 48	541	57 8
580	580	556	545	545	546	580	570	573	572	12 22	586	21 02	552	34 9
580	583	572	569	568	562	559	570	571	574	14 04	599	19 53	568	31 10
582	580	582	586	573	574	576	576	578	584	8 00	609	10 50	564	45 15
571	572	580	580	586	586	588	585	585	583	7 17	592	13 12	561	31 11
565	562	581	584	575	577	568	564	570	583	11 24	611	15 52	551	60 12
576	581	578	581	584	595	587	583	582	584	7 50	600	0 24	570	30 13
582	583	(585)	(587)	(589)	(591)	(592)	593	592	(588)	4 11	603	0 50	578	25 14
591	597	602	604	603	603	604	604	604	594	8 00	609	10 50	564	45 15
595	595	594	589	587	584	577	572	576	596	8 25	612	21 57	570	42 16
605	598	596	593	587	579	574	579	583	591	15 01	606	21 21	572	34 17
589	596	596	597	599	599	599	601	602	595	9 06	611	0 49	580	31 18
626	616	597	589	590	591	589	582	588	612	13 01	646	22 34	577	69 19
597	590	585	590	583	583	587	587	592	600	9 00	623	19 47	578	45 20
584	591	575	570	581	580	582	579	579	594	8 38	623	18 01	563	60 21
579	580	578	585	580	584	594	589	586	585	8 25	610	13 20	566	44 22
582	586	593	591	579	586	589	584	587	588	6 58	618	11 30	555	63 23
575	581	586	591	594	595	593	594	606	590	23 30	608	15 08	573	35 24
576	582	589	589	593	588	590	590	591	591	2 20	615	12 28	550	65 25
579	580	585	587	587	592	593	593	601	592	8 22	607	16 48	577	30 26
582	584	585	586	591	592	591	592	594	588	8 15	616	12 14	546	70 27
580	584	595	602	603	606	600	593	590	592	19 58	606	13 41	571	35 28
591	593	588	585	579	579	583	580	578	593	8 44	617	24 00	576	41 29
579	583	591	598	594	592	595	598	596	590	8 42	602	0 00	576	26 30
567	568	576	578	581	584	581	585	587	588	7 20	607	14 48	563	44 31
583	584	585	585	584	586	585	585	587	588					52
589	591	594	596	596	595	594	594	594	595					40
591	595	597	599	{594}	{594}	{599}	592	593	593	596				

FEBRUARY, 1917.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

588	590	590	592	592	591	588	589	592	591	7 44	604	13 55	582	22 1
569	580	585	582	581	585	588	587	587	583	5 00	598	13 27	553	45 2
577	579	583	587	588	588	588	585	585	587	7 42	599	14 05	570	29 3
580	587	591	593	593	593	593	592	593	592	8 48	608	13 42	563	45 4
574	561	567	573	574	578	577	580	581	582	8 30	604	16 35	559	45 5
587	593	593	587	585	575	571	576	582	587	8 42	602	21 08	566	36 6
584	591	583	558	562	553	544	550	561	578	9 11	599	21 48	537	62 7
568	562	564	573	579	584	582	581	580	577	8 44	592	16 30	561	31 8
581	581	587	587	585	585	588	584	579	585	8 30	591	24 00	574	17 9
569	574	577	582	582	583	579	572	572	578	8 45	592	14 15	561	31 10
569	572	573	575	580	579	578	580	579	581	9 00	595	14 54	567	28 11
586	587	587	587	588	587	585	584	587	585	8 30	593	0 34	577	16 12
575	578	580	582	586	586	586	586	586	584	8 00	602	13 55	560	42 13
584	578	567	562	561	559	553	550	561	584	8 38	610	22 08	548	62 14
491	495	488	478	476	495	507	586	516	554	8 48	628	19 04	468	180 15
562	565	568	571	578	580	576	574	573	559	20 23	583	1 08	505	78 16
566	559	569	572	570	561	545	534	522	574	8 46	603	28 58	518	85 17
556	560	565	569	567	569	569	568	559	562	8 50	596	0 00	518	78 18
567	562	549	548	548	558	576	576	578	568	9 52	593	1 42	543	50 19
565	566	568	567	567	572	575	575	576	578	8 24	613	0 40	553	60 20
564	568	568	566	571	578	581	581	581	579	7 57	598	18 37	561	37 21
586	574	577	562	563	576	580	577	582	586	11 50	608	18 45	551	57 22
582	577	570	563	564	567	564	564	576	581	9 01	603	18 53	558	45 23
583	581	576	574	578	578	580	580	583	585	9 52	610	18 10	572	38 24
582	582	571	568	571	573	579	582	582	583	9 15	602	12 30	566	36 25
576	575	574	574	576	578	576	578	581	587	10 18	615	18 55	573	42 26
588	580	575	573	579	573	569	576	578	584	9 10	600	21 28	567	33 27
586	585	584	583	584	583	583	583	584	595	10 54	626	0 05	578	48 28
573	573	572	571	572	574	574	574	575	580					48
580	580	581	582	584	584	583	583	584	585					32
583	583	584	584	{581}	{582}	{586}	580	582	583	586				

MARCH, 1917.

27500 $\gamma$  PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	586	586	586	586	586	589	590	598	601	596	593	588	587	595	592
2*	587	587	587	586	585	587	592	597	610	613	613	610	603	601	601
3†	587	588	588	590	591	592	596	606	622	624	628	629	628	623	618
4	590	591	591	592	594	596	601	612	624	623	621	618	603	594	593
5	564	574	570	554	555	565	566	572	580	580	575	582	581	563	530
6	557	559	561	567	564	562	566	573	581	577	572	576	582	577	571
7	570	568	566	568	567	569	571	576	582	592	597	596	595	595	586
8	561	566	566	574	571	569	571	573	579	578	566	565	563	560	557
9	546	549	559	559	564	563	566	580	591	594	595	593	595	591	586
10*	562	562	566	562	563	565	570	573	580	583	583	580	580	580	572
11	562	565	571	573	573	578	583	586	589	593	596	602	607	607	605
12	584	585	580	576	577	578	577	589	596	600	603	599	594	590	582
13	557	551	547	547	547	555	568	580	594	618	614	604	585	574	562
14*	565	571	573	575	576	579	582	588	592	592	589	594	600	599	592
15	580	581	582	584	585	592	590	594	597	600	597	588	579	572	570
16*	573	575	575	577	578	583	585	588	589	582	581	581	579	576	564
17	580	580	579	582	587	587	586	591	594	594	594	590	585	583	583
18	576	576	571	579	582	576	576	581	583	582	578	576	570	571	572
19*	583	582	583	584	589	591	589	596	601	603	600	600	599	594	589
20	582	582	586	589	594	600	611	607	613	617	616	616	613	605	601
21	578	574	571	573	573	576	579	585	594	597	603	605	603	593	575
22	584	582	583	588	587	592	590	591	594	596	606	625	638	634	624
23	585	585	584	589	588	584	585	579	572	566	568	585	594	601	600
24	587	587	588	590	591	591	593	587	582	582	591	604	613	616	620
25	584	591	589	586	593	591	590	586	575	563	562	557	547	556	580
26	569	571	578	581	578	579	581	579	579	581	591	602	603	602	602
27	578	579	579	582	584	584	585	587	583	582	592	591	591	590	586
28†	576	578	579	582	584	585	585	586	588	589	595	607	612	611	608
29†	581	584	584	585	587	589	590	588	588	597	608	618	618	618	616
30†	583	584	586	587	588	588	589	589	592	596	600	605	612	611	610
31*	585	586	587	589	591	592	598	603	605	613	615	620	621	619	615
Mean...	576	577	577	578	580	582	584	588	592	594	595	597	596	594	589
Mean*...	578	580	581	582	583	585	588	592	597	600	602	605	605	603	596
Mean†...	583	584	585	586	587	588	590	594	601	605	610	615	615	613	611

APRIL, 1917.

27500 $\gamma$  PLUS TABULAR QUANTITIES.

1	576	573	571	574	578	579	582	588	591	594	600	603	601	594	591
2	573	566	568	564	564	566	566	568	571	574	579	584	583	582	579
3	565	569	578	582	579	580	581	583	582	585	593	599	591	578	569
4	549	551	555	565	566	564	566	568	569	575	579	582	583	583	582
5	578	572	579	582	585	583	574	566	569	569	580	577	564	564	557
6	555	582	555	555	559	563	564	564	558	571	579	584	571	559	550
7	566	566	566	568	569	568	567	569	571	580	587	588	585	587	586
8	558	565	563	565	565	564	564	564	562	571	579	586	589	592	587
9	567	561	561	561	571	587	573	569	575	582	595	591	576	567	565
10†	563	564	566	567	569	570	569	567	568	572	580	583	581	582	585
11†	582	584	583	583	584	585	589	593	601	608	612	610	607	606	604
12*	584	584	586	586	586	587	587	584	586	585	589	593	590	590	593
13*	575	577	578	581	580	578	581	587	590	592	596	596	592	593	593
14†	584	586	586	588	590	590	592	600	605	611	619	619	613	613	612
15	594	589	597	593	590	589	601	618	619	624	621	606	606	600	595
16	553	555	565	574	571	573	578	571	576	585	576	574	571	573	574
17	565	562	552	556	561	561	564	571	581	589	596	601	601	595	587
18*	567	572	572	573	576	579	580	587	587	595	605	610	610	599	590
19*	565	566	566	568	568	568	568	568	576	588	594	595	595	591	585
20†	575	575	576	577	574	574	575	569	573	576	575	578	582	582	589
21	579	580	581	582	584	581	579	576	579	585	595	595	593	594	594
22	595	590	583	586	591	590	588	588	591	597	604	604	602	600	595
23	579	581	583	583	586	584	581	575	575	578	583	588	589	593	594
24*	588	589	586	587	589	589	591	592	596	599	595	595	591	588	590
25	584	585	586	589	591	591	591	594	597	601	612	626	625	632	634
26	598	589	579	571	569	566	573	576	564	579	583	595	597	596	569
27†	563	563	565	567	568	568	567	568	570	579	589	595	591	588	586
28*	576	576	576	578	581	580	577	575	575	580	590	594	593	588	587
29	589	574	569	575	574	573	574	581	585	587	590	592	590	590	589
30	571	559	566	577	565	562	567	572	578	581	585	586	586	579	567
Mean...	574	574	573	575	576	576	577	578	581	587	593	595	591	589	586
Mean*...	576	577	577	579	580	580	581	582	587	593	598	598	595	594	593
Mean†...	573	574	575	576	578	577	578	579	583	589	595	596	594	594	595

\*Ten least disturbed days.

†Five international quiet days.

## HOURLY VALUES OF HORIZONTAL INTENSITY.

55

MARCH, 1917.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.	
585	582	585	580	580	582	585	586	587	588	58	580	603	19 45	579 24
599	595	591	588	587	588	588	587	587	595	10 02	615 4	45	585 30	
611	606	601	598	591	589	587	589	591	603	11 19	631 21	19	586 45	
585	566	553	563	570	573	574	580	572	591	8 50	629 17	35	549 80	
547	549	552	548	548	554	553	559	558	562	11 50	591 14	26	524 67	
567	564	564	563	564	566	568	566	570	568	8 50	584 0	37	555 29	
575	563	557	561	564	565	573	565	555	574	10 35	598 23	14	553 45	
544	529	539	546	548	544	540	540	542	558	8 19	582 16	39	523 59	
578	571	572	571	573	574	571	572	571	574	13 00	595 0	11	543 52	
578	582	579	575	573	568	568	568	567	572	10 10	583 1	12	559 24	
601	594	591	587	585	582	582	583	584	587	12 45	609 0	45	559 50	
576	570	566	562	560	563	565	562	562	579	10 50	605 19	20	557 48	
556	554	555	557	565	569	569	568	565	569	9 19	619 4	27	544 75	
584	577	567	573	577	577	579	579	580	582	12 35	601 0	00	562 39	
573	570	568	570	574	578	579	578	578	582	10 05	604 14	05	567 37	
564	569	571	576	580	579	577	577	577	577	8 15	592 14	23	562 30	
582	569	567	570	572	567	557	561	568	580	9 16	595 21	14	555 40	
571	569	574	579	580	582	583	582	584	577	4 01	585 16	05	566 19	
581	582	581	578	571	565	570	577	582	586	9 13	603 20	40	563 40	
595	597	592	584	589	582	569	589	586	596	10 18	618 22	01	563 55	
582	585	586	586	586	584	581	579	584	585	12 07	606 2	18	570 36	
610	595	586	583	579	581	581	583	584	595	12 50	642 19	39	576 66	
595	585	580	583	587	586	586	585	586	585	13 31	605 10	15	563 42	
611	603	592	590	592	593	591	590	587	595	14 33	622 9	21	581 41	
583	571	563	560	564	565	566	571	570	573	1 33	595 12	37	541 54	
595	588	580	579	580	578	577	577	577	584	14 29	605 0	17	567 38	
582	581	575	573	577	578	576	576	578	582	12 06	597 18	04	571 26	
598	589	585	587	588	586	586	586	584	590	12 21	614 0	21	575 39	
611	601	592	588	587	585	586	584	584	595	12 47	619 0	41	579 40	
608	601	596	595	594	591	591	588	586	596	11 41	614 1	14	582 32	
609	599	593	593	590	582	572	568	572	597	11 49	624 22	30	566 58	
585	579	576	576	577	576	575	576	576	583				44	
594	590	586	585	586	581	580	580	581	589				38	
605	598	593	591	{583}	{584}	584	584	584	595					

APRIL, 1917.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

589	587	573	565	571	577	575	567	585	583	11 47	604 18	08	561 43
570	565	558	558	563	565	570	570	569	570	0 00	587 18	13	555 32
564	556	551	549	562	563	561	560	555	572	11 48	602 18	16	544 58
579	575	576	580	582	578	574	577	579	572	23 48	586 0	41	548 38
553	539	533	532	532	522	526	543	567	560	4 38	588 20	41	521 67
549	548	540	551	558	562	563	563	563	561	1 13	597 17	23	535 62
573	567	561	550	546	548	547	561	556	568	13 50	589 21	18	542 47
578	561	569	571	562	549	575	557	567	569	13 34	593 20	30	544 49
557	549	544	554	554	560	565	563	565	568	10 25	598 17	17	541 57
587	585	580	581	581	581	582	581	581	576	15 40	588 0	05	561 27
604	599	588	584	586	586	585	585	584	593	10 45	612 0	00	581 31
599	589	575	577	581	575	564	570	573	584	15 14	600 21	06	563 37
591	587	585	585	586	585	586	586	586	586	11 18	597 0	00	574 23
609	601	595	592	594	593	594	593	594	599	10 42	621 1	14	584 37
589	587	581	571	577	574	562	567	566	593	10 03	626 21	32	559 67
568	559	556	542	537	542	546	545	546	563	9 50	587 19	34	535 62
588	577	564	556	559	560	560	570	569	573	13 00	603 2	30	552 51
581	564	547	551	557	567	568	568	567	579	11 14	613 17	30	545 68
575	568	562	566	571	573	574	575	575	575	12 30	595 17	30	562 33
588	582	582	583	581	578	584	582	582	578	14 40	589 8	06	568 21
598	592	588	589	595	596	595	596	598	588	15 27	599 7	32	575 24
588	585	583	580	569	574	573	575	577	588	11 03	606 19	25	566 40
596	593	584	580	583	586	588	591	589	585	15 20	598 7	47	573 25
595	592	586	586	586	584	582	583	582	589	10 06	601 21	44	580 21
624	609	617	597	602	605	605	605	600	604	14 37	638 0	05	583 55
552	546	548	554	559	562	562	564	563	571	12 56	606 16	08	544 62
582	576	573	572	574	574	573	576	576	575	11 25	595 0	00	562 33
587	581	580	585	590	585	579	581	581	583	10 47	595 2	15	571 24
582	574	581	589	585	585	586	581	581	582	18 39	592 2	17	568 24
564	559	562	573	579	577	566	568	571	572	12 15	591 1	19	556 35
582	575	571	570	572	572	573	575	575	579				41
591	584	577	578	581	580	580	580	580	584				33
594	589	584	582	{583}	{582}	573	574	574	583				

MAY, 1917.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	582	571	575	582	583	585	582	574	567	574	585	583	584	584	577
2	546	541	553	561	555	553	552	552	549	555	564	555	537	538	537
3	543	551	549	553	553	560	553	553	555	550	546	548	551	553	544
4	544	543	547	549	550	550	554	555	556	561	561	559	553	549	548
5	560	558	566	567	558	557	549	550	553	564	575	578	575	575	572
6*†	567	567	567	568	568	567	567	568	577	586	593	587	577	573	567
7*†	558	561	566	564	574	575	574	579	588	593	598	599	596	587	579
8*†	577	577	577	578	576	577	577	579	589	596	603	601	592	584	577
9*†	584	584	584	583	582	580	576	576	590	600	600	596	593	582	578
10	578	576	578	577	576	576	579	581	588	596	599	597	592	589	589
11*	575	573	569	575	577	573	576	581	584	588	592	592	587	580	577
12	582	582	582	584	583	589	597	604	608	613	618	618	614	617	611
13†	578	584	576	571	572	575	579	582	587	596	606	612	607	601	594
14	569	568	566	566	566	567	569	575	583	587	587	586	582	576	566
15	572	570	569	570	571	572	571	571	571	574	577	579	578	576	574
16	580	587	606	588	580	584	585	571	568	568	571	565	555	550	543
17	565	560	566	574	569	567	562	563	572	579	580	579	574	572	568
18	572	574	575	577	579	580	580	578	583	593	604	610	607	595	584
19*†	577	577	578	579	579	578	575	571	576	593	601	612	614	609	600
20*†	581	581	581	580	579	580	579	575	589	596	601	607	599	591	591
21	586	583	582	582	582	584	588	591	595	604	609	616	621	618	612
22	586	584	583	586	585	582	585	591	604	615	624	630	620	595	590
23*	585	585	584	585	590	597	595	593	592	602	607	614	612	606	602
24*	578	579	582	583	585	585	587	586	596	609	620	622	610	600	593
25	586	583	584	585	585	595	598	598	604	609	613	615	619	616	616
26	583	585	583	591	594	597	594	590	584	584	589	592	591	588	587
27	580	570	570	572	573	568	572	571	574	580	585	580	579	574	569
28	574	584	573	572	576	590	(586)	(581)	577	577	569	561	562	560	561
29	566	576	575	565	564	564	564	558	562	573	586	594	588	585	587
30	571	564	563	565	568	568	566	567	568	571	571	567	573	581	580
31*	571	568	566	566	565	566	567	569	577	585	587	588	584	579	577
Mean...	573	572	573	574	574	576	575	575	580	586	591	592	588	584	579
Mean*...	575	575	575	576	578	578	577	578	586	595	600	602	597	590	584
Mean†...	576	577	576	575	575	575	575	575	584	593	601	604	599	593	586

JUNE, 1917.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

1*†	568	568	572	575	575	572	569	564	569	586	602	613	613	601	593
2*†	572	573	575	576	576	573	575	575	581	590	599	605	604	598	593
3	579	578	578	579	580	579	577	575	580	590	598	615	623	627	618
4	531	538	551	560	548	550	547	541	543	554	570	582	588	585	579
5*	567	567	567	569	567	568	567	568	571	579	591	596	594	590	578
6	574	573	575	575	575	576	576	573	573	587	601	604	598	600	604
7	602	601	606	605	603	601	608	602	605	619	627	635	625	614	613
8	555	550	554	553	562	564	560	555	547	550	558	566	567	565	567
9	575	575	580	581	580	583	585	583	584	591	591	592	593	593	595
10	573	577	573	580	574	576	580	579	574	574	572	569	568	571	567
11	569	568	571	574	576	579	585	590	589	584	577	578	578	579	580
12	580	580	582	585	587	588	594	588	583	585	589	589	588	581	569
13	593	591	584	585	590	594	590	595	606	601	601	594	559	564	557
14	570	576	573	580	570	571	577	582	577	573	571	573	572	572	571
15	567	571	569	572	580	575	575	569	567	561	561	566	564	558	561
16	570	569	567	569	571	576	579	580	578	575	576	574	564	558	563
17*	576	576	574	575	576	576	578	574	573	576	582	586	580	575	577
18*	575	573	571	573	574	574	581	584	583	584	589	599	601	600	598
19*†	579	577	575	576	577	578	579	577	570	572	579	583	582	578	572
20*†	579	579	580	580	579	580	581	575	570	575	587	594	597	596	597
21*	585	584	585	586	584	584	585	585	589	595	595	592	586	584	588
22	592	588	592	596	597	601	602	594	597	599	603	607	611	614	615
23	571	567	564	570	569	576	582	579	584	584	589	577	565	563	568
24	543	543	540	541	546	553	550	551	557	559	553	529	544	563	550
25	529	539	540	542	540	543	547	549	550	550	542	535	535	539	544
26*	556	564	564	560	558	558	560	561	563	566	566	565	560	559	564
27	564	559	563	563	564	566	567	568	575	587	596	598	592	585	583
28	553	547	547	551	555	560	565	565	564	566	567	569	565	558	555
29	552	551	550	552	554	559	563	568	565	561	566	564	566	565	571
30*†	566	566	568	569	569	568	568	568	565	565	565	569	568	572	579
Mean...	569	569	570	572	572	573	575	574	574	578	582	584	582	580	579
Mean*...	572	573	573	574	574	573	574	573	573	579	586	590	588	585	584
Mean†...	573	573	574	575	575	574	574	572	571	578	586	593	593	589	587

\*Ten least disturbed days.

†Five international quiet days.

## HOURLY VALUES OF HORIZONTAL INTENSITY.

57

MAY, 1917.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.	
554	535	527	533	537	540	551	560	543	566	11 29	596	17 03	522	74 1
522	509	502	512	530	541	549	546	538	542	10 32	566	17 40	500	66 2
538	522	524	521	521	537	540	550	557	545	5 20	564	16 58	513	51 3
544	544	548	557	559	563	560	555	552	553	20 32	565	0 54	540	25 4
567	557	553	555	559	562	564	567	568	563	11 20	579	6 29	547	32 5
564	560	557	561	569	572	569	561	560	570	10 29	594	17 38	556	38 6
569	561	556	559	565	572	575	575	573	575	11 00	600	17 35	554	46 7
577	576	575	578	581	583	584	584	583	583	10 23	605	16 50	575	30 8
576	572	563	565	565	570	573	576	578	580	9 58	603	17 32	561	42 9
584	577	582	578	573	577	573	572	581	582	10 43	600	21 50	568	32 10
570	569	570	571	574	578	579	582	581	578	11 10	593	17 03	569	24 11
600	589	580	572	566	571	578	575	582	592	10 40	619	19 51	563	56 12
589	579	569	568	566	563	564	564	568	581	11 49	613	21 05	568	50 13
561	557	558	565	575	572	572	572	574	572	9 51	587	17 19	551	36 14
566	565	566	569	571	574	572	576	583	572	23 18	586	15 30	565	21 15
535	527	530	537	543	545	553	552	561	562	2 32	610	16 55	526	84 16
565	564	565	566	566	564	565	569	571	569	11 08	580	1 23	557	23 17
575	568	571	576	581	581	579	579	579	582	11 27	613	17 03	565	48 18
590	580	582	580	583	582	584	583	581	586	12 05	615	7 25	570	45 19
581	570	573	577	582	584	584	584	587	585	12 05	610	16 54	567	43 20
604	591	586	586	587	589	590	588	587	594	11 56	624	4 05	581	43 21
579	574	575	576	582	589	586	585	586	591	11 45	631	16 45	573	58 22
595	580	574	575	577	575	575	576	578	590	11 44	618	17 25	574	44 23
586	584	585	585	588	589	590	589	587	592	11 22	624	0 16	578	46 24
602	578	583	583	587	588	586	581	584	595	14 57	621	16 49	577	44 23
585	577	577	577	583	585	584	582	582	586	5 04	598	18 00	576	22 26
572	566	555	556	570	565	569	565	563	571	10 45	587	18 03	547	40 27
562	555	561	565	566	563	552	551	571	569	5 33	594	22 07	543	51 28
573	560	552	552	564	561	562	572	569	577	11 43	595	19 30	549	46 29
573	561	560	564	570	563	562	566	568	568	14 07	583	21 02	559	24 30
566	562	563	569	571	570	571	569	568	572	11 25	589	16 08	560	29 31
572	564	562	564	568	570	571	571	572	575					42
577	571	570	572	576	578	578	578	578	581					39
580	573	571	573	{571 574}		576	576	577	581					

JUNE, 1917.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

583	575	574	575	572	570	571	574	575	580	12 04	616	7 37	562	54 1
584	577	576	579	579	578	577	577	578	582	12 13	606	0 57	572	34 2
610	592	573	560	538	514	509	535	532	577	13 33	631	21 22	501	130 3
567	559	555	557	558	564	566	566	566	559	12 09	590	0 10	529	61 4
573	564	561	563	569	572	575	576	575	574	11 45	597	18 08	560	37 5
598	594	593	590	596	602	608	606	606	590	14 22	611	7 59	570	41 6
596	566	538	516	530	560	563	558	563	590	11 03	635	19 11	512	123 7
565	559	556	557	559	573	584	579	578	562	21 11	586	8 24	546	40 8
592	585	580	575	574	571	567	565	567	582	14 35	597	22 56	562	35 9
567	566	568	567	565	564	568	583	573	572	22 47	585	20 08	563	22 10
577	579	578	578	579	577	578	581	581	579	8 00	591	1 34	567	24 11
562	561	565	567	570	571	575	577	578	579	6 33	594	16 07	560	34 12
545	555	562	564	559	556	564	568	569	576	9 02	608	15 09	540	68 13
571	566	567	566	569	566	565	570	568	572	3 18	585	20 55	564	21 14
571	576	574	573	576	578	578	575	570	570	4 30	581	13 41	556	25 15
568	571	576	578	573	572	571	572	571	572	7 00	582	13 53	553	29 16
580	578	577	577	579	580	580	578	578	578	11 33	586	8 08	572	14 17
589	576	571	574	577	577	578	580	579	582	12 34	602	2 52	571	31 18
576	576	576	576	578	579	579	579	580	577	11 58	583	8 22	569	14 19
597	591	584	582	582	583	583	584	585	584	15 27	599	8 22	570	29 20
591	589	583	585	585	585	584	586	593	587	9 44	596	21 53	581	15 21
606	601	589	591	590	583	580	578	575	596	14 25	620	23 45	569	51 22
556	535	533	528	538	539	536	545	554	561	10 20	594	18 51	526	68 23
551	541	515	507	522	524	518	512	525	539	13 08	576	18 33	505	71 24
535	541	545	550	551	555	553	561	557	545	22 39	565	0 00	527	38 25
563	565	563	559	560	561	565	565	563	562	11 00	568	0 27	555	13 26
579	569	568	568	567	565	555	547	564	571	11 00	600	22 33	544	56 27
551	553	567	574	572	576	568	563	557	561	20 27	577	1 22	546	31 28
571	568	561	559	560	559	558	556	561	561	14 54	573	0 01	549	24 29
586	584	581	576	573	573	574	573	573	572	15 32	588	9 30	564	24 30
575	570	567	566	567	568	568	569	570	573					42
582	578	575	575	576	577	577	578	578	578					26
585	581	578	578	{572 571}		571	572	573	578					

## PORTO RICO MAGNETIC OBSERVATORY.

JULY, 1917.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	575	574	574	575	577	576	577	578	580	583	588	595	598	592	586
2	580	579	592	588	572	579	589	588	579	580	591	586	582	568	583
3	585	585	582	575	573	569	567	574	581	587	594	588	578	569	575
4	574	586	579	576	576	574	573	575	579	582	580	578	576	580	585
5*	571	569	571	569	566	569	574	581	585	592	597	593	585	584	583
6†	572	573	573	572	574	574	577	579	584	593	596	596	588	577	573
7	565	568	572	578	582	586	589	586	590	605	610	615	606	597	601
8*	570	571	568	567	569	570	572	579	585	592	597	591	588	584	582
9	575	575	576	576	576	579	584	594	599	597	598	599	591	588	581
10	576	579	580	583	585	589	590	597	603	602	607	615	614	608	600
11	580	582	589	581	575	574	588	600	607	617	615	606	592	577	580
12	566	566	562	562	565	564	564	567	568	574	573	561	562	551	549
13	577	561	572	552	555	559	565	564	553	549	572	510	509	505	500
14	517	531	541	543	541	543	544	540	538	545	549	544	542	541	540
15	559	553	551	552	548	551	555	555	557	554	559	555	554	557	561
16†	553	552	552	553	553	554	556	560	560	557	563	564	558	551	549
17†	561	561	562	559	557	559	560	560	558	559	567	568	563	568	573
18†	559	562	560	561	560	561	564	565	565	571	576	574	566	557	556
19*	567	567	568	570	570	569	566	566	566	565	567	570	568	567	567
20†	560	563	566	569	569	569	572	575	574	575	581	586	584	580	584
21	568	569	569	572	576	575	574	572	578	585	599	601	591	584	575
22	553	539	534	535	535	531	536	545	553	553	559	555	552	552	549
23	547	552	550	547	546	547	550	549	540	535	531	533	537	544	548
24*	544	560	559	556	555	557	558	558	567	574	585	593	598	593	582
25*	555	557	560	563	564	565	568	571	572	573	574	574	573	571	566
26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
27	573	574	573	573	572	573	573	573	574	587	615	628	628	620	620
28	575	577	579	581	582	581	585	583	582	587	596	601	594	590	587
29	504	509	514	521	526	521	533	515	509	529	532	541	555	556	551
30	545	543	541	542	540	541	545	547	548	557	566	568	567	566	566
31	556	557	555	553	554	557	561	557	557	551	539	537	531	522	497
Mean....	562	563	564	563	563	564	567	568	570	574	578	577	574	570	568
Mean*....	561	564	564	564	564	565	567	569	572	575	580	581	577	573	572
Mean†....	561	562	563	563	563	463	566	568	568	571	577	578	572	567	567

AUGUST, 1917.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

1	504	511	513	526	533	533	532	544	550	550	549	547	548	549	544
2	548	545	544	546	547	545	544	545	554	570	585	587	536	585	576
3*	557	558	557	557	560	558	557	558	568	579	582	585	584	584	578
4*	565	559	561	562	554	552	547	548	552	556	553	545	544	538	537
5†	562	562	560	562	559	561	560	558	554	557	566	574	577	577	573
6†	563	564	564	565	564	565	568	564	556	556	559	565	566	569	575
7	573	572	573	576	579	580	581	577	571	577	583	593	598	594	586
8	544	552	558	555	556	559	561	563	560	555	554	554	597	533	535
9	619	586	543	465	462	466	460	457	472	474	471	475	478	488	477
10	446	441	445	462	464	463	459	455	444	451	470	478	484	490	493
11	514	510	518	518	512	512	516	528	539	545	544	546	548	545	540
12*	532	533	535	536	538	539	540	535	536	546	557	567	573	574	566
13	540	540	541	542	547	544	544	548	549	548	535	564	565	554	547
14	517	522	529	531	534	540	539	549	540	509	487	472	466	443	426
15	445	470	465	469	483	490	488	469	456	445	456	469	479	480	483
16	524	527	527	527	527	529	531	533	528	526	520	519	514	513	513
17	525	528	528	519	525	522	521	518	519	531	545	556	555	548	542
18*	526	530	525	525	528	529	529	524	524	527	531	532	533	536	534
19†	533	532	529	526	525	524	524	523	523	521	527	536	539	538	537
20	551	552	552	551	562	567	568	558	559	574	582	584	585	583	577
21	512	498	521	513	522	528	518	512	528	524	509	509	491	479	465
22	470	494	493	495	492	498	499	492	499	506	514	515	510	500	488
23	500	509	505	509	511	509	504	502	502	504	498	493	487	471	479
24	518	518	521	520	517	519	519	527	536	543	543	547	547	541	548
25	536	536	537	539	540	541	539	536	537	542	540	540	537	537	536
26	480	486	484	490	499	488	499	507	507	505	501	496	496	503	504
27	520	520	524	524	523	525	525	519	514	514	509	508	510	511	511
28*	539	535	538	537	536	536	536	530	529	532	539	542	540	540	543
29†	541	545	544	541	540	540	535	524	523	529	534	539	539	537	537
30*	551	551	554	554	554	554	546	542	544	549	544	547	559	559	557
31*	539	541	547	547	543	539	535	534	546	556	566	571	575	576	572
Mean....	529	530	530	529	530	531	530	528	530	529	534	537	537	535	532
Mean*....	548	548	548	549	548	547	545	542	543	549	553	556	555	555	557
Mean†....	548	548	547	546	545	545	545	540	536	539	545	551	552	552	553

\*Ten least disturbed days.

†Five international quiet days.

## HOURLY VALUES OF HORIZONTAL INTENSITY.

59

JULY, 1917.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.	
584	583	583	579	576	575	571	578	579	581	12 09	601	21 32	569	32
583	582	573	576	580	580	578	576	581	581	2 58	604	13 28	555	49
573	569	566	566	569	575	571	572	574	576	10 35	596	3 55	560	36
583	572	567	567	568	570	570	571	577	576	1 30	589	18 26	565	24
586	570	568	567	568	569	570	571	572	576	10 45	598	4 20	566	32
568	566	566	565	568	570	571	574	569	576	11 09	598	18 25	565	33
594	588	582	584	584	578	576	571	571	587	11 56	623	0 54	564	59
584	584	581	576	574	574	575	576	576	578	10 27	598	0 20	566	32
577	569	569	571	573	575	574	577	577	581	10 55	602	16 54	568	34
589	584	584	591	595	583	585	582	581	592	11 53	616	1 09	576	40
584	564	566	565	564	563	564	564	564	582	9 55	620	23 01	562	58
551	556	564	560	557	566	562	571	576	563	24 00	581	14 00	546	35
506	521	515	506	512	515	520	517	514	533	00 12	587	14 22	497	90
541	541	544	548	550	552	553	552	563	543	23 51	565	0 00	515	50
561	559	558	557	555	554	556	556	555	556	0 00	565	4 29	547	18
548	548	552	553	556	558	558	560	562	555	10 52	565	16 19	546	19
573	568	561	559	560	561	562	560	559	562	15 25	574	4 38	557	17
557	560	561	562	563	564	563	566	567	563	10 39	578	15 02	556	22
567	562	559	554	550	550	553	557	559	563	4 41	571	20 47	550	21
587	582	576	572	570	568	569	568	568	574	15 20	588	0 00	558	30
560	544	535	521	526	526	522	514	525	561	11 13	603	22 10	504	99
549	544	543	543	551	544	542	554	551	546	0 35	561	5 32	526	35
547	548	547	544	546	548	546	544	541	544	1 34	555	10 50	528	27
567	555	552	554	555	553	557	558	556	564	12 30	598	0 00	540	58
559	557	554	553	555	557	(558)	(558)	(558)	563	9 42	574	17 16	553	21
562	563	566	569	567	567	567	572	572	589	11 54	629	20 30	566	63
612	598	597	601	589	574	572	574	574	566	11 20	602	24 00	494	108
574	557	542	535	531	527	517	510	502	536	13 02	563	0 04	491	72
544	549	551	550	552	551	550	554	545	536	16 00	572	1 46	538	34
561	(569)	557	554	558	559	560	560	556	555	6 27	563	16 15	472	91
491	482	486	497	511	495	505	491	495	527					31
565	561	559	558	559	558	558	558	558	565					44
570	565	563	562	562	562	564	565	565	568					28
567	565	563	562	{558}	{558}	560	561	561	565					

AUGUST, 1917.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

527	521	525	528	538	544	547	549	551	536	22 40	553	0 00	500	53
563	550	543	540	544	545	555	555	556	557	11 09	588	17 50	539	49
568	564	563	560	566	566	570	570	568	567	12 54	586	7 35	554	32
540	540	547	553	555	555	557	562	565	552	0 15	570	14 10	534	36
569	564	561	562	564	564	560	559	561	564	13 00	579	8 30	553	26
576	572	569	568	571	572	571	570	574	567	23 49	578	9 30	555	23
572	563	545	532	533	539	540	543	550	568	12 28	606	19 11	529	77
539	542	540	541	544	550	550	549	556	549	7 41	565	13 20	532	33
475	466	526	523	427	399	415	452	447	480	0 46	648	20 35	389	259
497	500	500	503	505	509	511	511	513	479	24 00	515	1 30	439	76
536	529	527	528	529	532	532	532	534	530	12 25	548	1 55	506	42
553	548	548	547	544	532	536	540	540	546	13 17	576	20 38	529	47
535	537	519	518	532	527	517	513	516	538	13 28	606	17 47	491	115
415	410	407	407	419	425	423	424	443	474	7 38	554	17 24	404	150
485	482	481	485	492	508	510	515	523	480	23 43	532	0 50	437	95
504	503	511	515	522	526	532	533	529	522	22 05	536	15 51	495	41
535	531	530	532	534	537	540	532	526	532	11 33	559	3 16	517	42
528	516	514	527	535	538	534	534	535	529	20 28	542	16 59	509	33
537	535	533	537	544	547	548	549	552	534	23 55	552	9 10	520	32
568	561	553	551	547	532	524	527	524	558	12 08	590	24 00	518	72
450	432	422	411	437	453	445	460	471	484	4 42	537	18 17	399	138
481	460	453	468	485	484	486	491	494	490	10 51	518	18 08	451	67
484	482	488	498	505	508	509	517	528	500	23 15	534	13 44	458	76
551	544	540	537	535	533	534	537	537	534	15 20	552	4 35	516	36
540	566	572	564	558	556	553	548	487	470	15 43	581	20 14	456	125
510	511	509	511	518	518	520	521	522	504	23 00	522	0 00	471	51
516	523	529	530	535	536	539	540	542	523	23 12	543	11 17	506	37
539	537	538	541	540	538	542	544	543	538	22 34	546	8 19	528	18
539	543	544	548	550	551	552	551	551	541	23 17	553	7 57	523	30
545	531	531	537	542	539	539	541	542	546	13 02	562	16 49	523	39
561	550	546	547	550	550	553	554	555	552	12 47	578	7 16	532	46
530	523	523	524	526	526	527	528	530	529					64
552	546	546	549	552	551	551	553	553	550					33
552	550	549	551	{546}	{546}	546	548	549	547					

SEPTEMBER, 1917.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1*†	554	554	554	557	558	559	556	555	556	550	592	598	599	602	588
2	561	562	564	568	564	568	563	559	559	557	571	579	573	561	519
3	584	528	527	543	542	536	540	539	535	529	525	521	516	515	524
4	541	542	548	553	554	552	544	538	525	512	512	518	522	524	522
5	546	542	586	579	574	551	548	525	536	538	531	519	495	476	473
6	502	505	509	512	511	511	510	506	501	508	514	513	517	517	514
7	525	526	525	529	530	529	528	531	538	545	547	541	532	527	528
8	536	542	543	538	540	536	540	543	539	541	545	550	551	550	549
9	527	525	533	533	538	540	539	545	536	537	540	535	531	523	516
10	538	536	534	534	541	543	540	543	544	544	550	553	550	545	(542)
11*†	544	543	542	544	549	550	550	545	541	543	549	554	552	549	547
12	550	550	548	552	555	554	556	556	555	560	566	569	568	569	564
13	528	533	535	538	539	541	542	544	549	551	554	557	555	550	544
14*	543	547	547	548	548	549	546	532	524	526	535	543	549	558	561
15*	537	544	547	546	548	552	551	543	540	546	556	565	573	576	569
16*	556	558	558	556	554	556	550	541	535	532	534	540	549	548	551
17	541	544	544	550	552	550	549	544	536	538	543	548	553	562	565
18	553	552	551	553	554	554	550	543	544	558	570	582	587	580	560
19	552	551	538	539	541	536	547	559	565	558	560	558	554	558	552
20	538	551	545	541	542	543	543	544	541	545	547	541	543	538	538
21	521	526	530	535	539	545	547	544	540	536	542	545	551	551	542
22	527	531	532	538	542	545	544	544	553	554	559	559	560	560	554
23*†	543	544	543	544	544	545	545	544	544	547	551	557	560	557	556
24*	536	546	548	555	559	555	549	548	647	552	553	556	552	550	545
25*†	548	547	548	550	552	558	562	562	564	568	568	567	562	552	549
26*†	554	552	551	554	555	555	556	557	555	551	550	558	558	555	453
27*	559	557	556	558	560	560	557	549	544	537	539	542	541	538	537
28	544	548	551	558	573	561	563	567	573	572	570	564	570	570	565
29	555	556	560	564	564	564	561	560	557	562	566	564	559	558	549
30	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mean...	541	542	544	547	548	548	547	545	544	545	549	551	551	549	545
Mean*...	547	549	549	551	553	554	552	548	546	548	553	558	560	558	556
Mean†...	549	548	548	550	552	553	554	553	554	558	562	567	566	563	559

OCTOBER, 1917.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

1	518	510	515	523	528	538	536	540	539	539	552	560	559	555	541
2	523	528	534	535	544	547	545	540	532	523	523	526	533	521	510
3	526	529	527	538	552	546	544	545	548	545	544	543	544	541	521
4	517	507	508	514	528	532	527	522	522	514	516	517	517	518	518
5	540	539	543	547	550	549	549	555	554	543	540	549	551	549	547
6	519	518	524	527	546	564	556	553	548	543	543	541	537	529	522
7*	539	541	542	544	546	548	551	551	546	540	539	542	547	545	545
8	543	544	551	552	550	551	555	560	555	557	563	555	559	524	525
9	536	538	539	544	549	548	547	550	553	555	558	559	554	552	547
10	548	539	538	539	541	543	544	546	551	559	569	570	561	553	543
11	555	533	533	536	540	538	539	552	557	559	557	555	555	539	523
12*	533	534	536	537	539	542	541	542	542	543	549	555	551	548	543
13	539	538	542	546	550	552	556	561	568	570	568	574	577	588	571
14	514	523	527	543	540	546	561	583	564	555	541	528	516	506	503
15*	526	534	536	535	535	537	542	549	550	547	543	544	545	539	534
16*†	530	535	537	542	544	544	540	536	532	534	537	538	544	543	542
17*	546	546	544	548	548	546	544	544	534	526	524	527	531	532	533
18*	537	538	538	540	543	545	545	542	540	543	545	542	545	546	548
19*†	546	548	549	550	550	551	552	554	554	557	559	557	559	559	559
20*†	550	552	554	554	556	556	554	553	550	548	545	549	549	555	552
21*†	533	535	540	544	547	549	551	556	559	557	557	555	554	550	546
22*†	549	551	554	556	560	560	560	558	552	546	536	532	529	526	527
23	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
24	548	552	549	550	552	548	546	554	554	552	554	549	544	540	538
25	471	469	485	501	486	490	496	507	510	518	527	527	522	511	497
26	510	511	514	518	521	524	529	539	546	549	552	551	548	542	532
27	526	526	527	526	523	527	535	545	550	553	556	561	553	539	529
28	535	531	532	534	538	542	533	531	541	549	540	529	515	496	486
29	476	481	491	497	509	504	510	512	521	514	505	502	488	470	460
30	484	487	(493)	(498)	505	511	514	509	511	502	499	499	498	499	496
31	517	517	518	516	517	519	522	523	525	525	514	518	518	511	504
Mean...	528	528	531	534	538	540	541	543	543	542	542	542	539	534	528
Mean*...	539	541	543	545	547	548	548	548	545	544	544	544	545	544	543
Mean†...	542	544	547	549	551	552	551	551	549	549	547	546	547	547	545

\*Ten least disturbed days.

†Five international quiet days.

## HOURLY VALUES OF HORIZONTAL INTENSITY.

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SEPTEMBER, 1917.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.		
570	564	558	556	559	560	560	562	562	568	13 30	604	7 05	552	52	1
538	521	510	511	516	514	515	518	520	547	13 00	581	17 50	505	76	2
520	523	523	517	512	524	529	531	537	528	3 44	549	19 27	510	39	3
526	527	530	533	537	543	543	541	548	535	4 18	556	10 00	508	48	4
473	462	457	449	454	482	495	498	498	512	2 38	602	19 20	431	171	5
505	504	505	511	521	525	525	526	526	512	22 01	527	0 00	499	28	6
524	520	522	528	533	532	536	536	536	531	9 59	549	17 02	517	32	7
542	535	532	524	538	516	524	524	532	538	12 48	552	20 43	511	41	8
517	522	524	527	534	539	538	538	541	533	7 23	548	14 34	514	34	9
(538)	535	537	541	545	547	548	545	545	542	11 45	553	4 04	532	21	10
545	545	546	547	548	549	550	553	552	547	11 18	554	8 16	540	14	11
557	556	549	541	537	524	527	530	527	551	13 33	571	20 57	517	53	12
544	544	547	549	551	548	546	543	545	545	11 48	559	0 00	526	33	13
559	555	556	558	562	562	562	557	545	549	21 52	564	9 02	521	43	14
557	549	552	555	557	558	558	557	558	554	13 07	578	0 21	534	44	15
554	555	555	557	555	551	549	541	542	549	1 48	561	9 32	530	31	16
553	540	534	534	542	547	550	551	551	547	14 05	568	18 00	529	39	17
544	534	525	519	519	532	544	541	544	550	12 05	588	18 53	517	71	18
543	530	526	535	538	541	541	541	541	546	8 39	567	16 25	523	44	19
535	517	511	516	524	520	519	511	513	534	1 31	553	16 57	507	46	20
536	536	539	540	545	548	536	513	518	538	13 40	554	22 32	509	45	21
547	537	541	545	544	544	543	542	542	545	13 32	562	0 00	510	52	22
550	549	549	551	553	553	551	551	538	549	12 22	562	24 00	535	27	23
546	547	553	556	553	552	554	554	551	551	4 43	562	2 39	534	28	24
549	554	557	558	560	562	558	555	555	557	11 12	572	1 06	546	26	25
553	553	556	559	559	558	561	559	561	556	21 47	562	10 14	549	13	26
534	533	532	539	537	533	533	539	543	544	4 56	561	20 50	531	30	27
559	558	563	564	558	560	559	557	555	562	4 52	584	0 04	544	40	28
543	---	(309)	508	517	516	511	506	518	---	---	---	---	---	--	29
540	536	535	536	539	540	541	540	541	543	---	---	---	44		
552	550	551	554	554	554	553	551	552	552	---	---	---	31		
553	553	553	554	{550}	{551}	551	550	550	554	---	---	---	44		

OCTOBER, 1917.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

536	518	519	529	527	517	523	531	525	532	12 57	563	1 45	508	55	1
518	509	494	507	507	514	518	517	519	524	4 51	548	17 20	488	60	2
518	477	487	499	479	486	477	471	481	520	4 08	560	23 12	469	91	3
520	523	529	532	526	517	523	525	535	521	5 05	537	1 52	505	32	4
546	542	535	532	537	531	521	518	523	541	8 06	557	21 33	514	43	5
525	532	536	539	539	539	539	539	539	537	5 31	567	1 16	517	50	6
534	525	530	(531)	(532)	(532)	533	537	541	540	7 12	551	16 50	523	28	7
525	527	530	532	540	539	541	540	539	543	10 35	566	13 24	520	46	8
541	538	539	539	542	545	544	539	539	546	11 03	562	0 45	535	27	9
535	535	541	546	544	544	544	543	550	547	10 58	572	15 20	534	38	10
521	517	521	533	534	533	535	538	537	539	9 40	561	16 15	515	46	11
539	532	538	539	542	543	543	542	539	541	11 30	558	1 00	531	27	12
534	528	520	514	522	522	510	508	508	544	13 10	601	23 07	501	100	13
502	509	320	526	528	529	530	529	528	531	7 04	601	14 57	499	102	14
530	524	519	515	517	517	525	527	528	533	8 25	550	18 18	514	36	15
541	540	545	547	545	545	544	544	546	541	18 45	548	0 05	528	20	16
534	531	533	536	535	531	533	533	534	535	3 35	551	10 04	518	33	17
546	544	546	546	549	549	548	547	545	544	14 14	549	0 00	534	15	18
553	546	546	548	550	549	548	548	549	552	12 51	562	0 00	544	18	19
548	543	545	546	545	537	531	531	532	547	13 15	558	22 24	530	28	20
545	545	550	554	555	552	550	549	548	550	9 20	561	0 00	531	30	21
530	536	(542)	(545)	(545)	(545)	(544)	(543)	(542)	544	6 21	561	13 55	524	37	22
--	533	542	551	555	555	555	549	549	--	--	--	--	--	--	23
522	510	505	501	497	492	488	486	482	530	4 45	557	24 00	477	80	24
495	495	499	504	506	506	509	509	510	502	11 48	528	2 00	465	63	25
525	521	523	528	529	530	530	530	528	530	11 53	553	0 24	510	43	26
523	524	528	534	539	540	540	540	540	537	11 11	562	1 08	523	39	27
476	461	451	425	435	467	482	475	481	504	7 57	554	18 50	417	137	28
459	472	469	465	474	479	478	479	482	487	8 47	523	14 57	452	71	29
491	491	503	503	507	507	497	495	504	500	6 15	516	0 30	483	33	30
510	498	505	502	509	510	513	514	516	514	8 33	527	19 03	493	34	31
524	520	522	528	525	525	525	524	526	532	---	---	---	49		
540	537	539	541	542	540	540	540	540	543	---	---	---	27		
543	542	546	548	{548}	{546}	540	540	540	546	---	---	---	49		

## PORTO RICO MAGNETIC OBSERVATORY.

NOVEMBER, 1917.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	519	517	518	529	530	528	529	521	525	527	531	536	532	523	522
2	528	526	526	527	528	530	531	532	531	529	532	537	539	536	530
3	531	525	524	526	529	535	540	546	549	549	543	536	532	529	528
4*	531	533	535	537	537	538	541	544	544	541	541	542	540	534	529
5*	537	538	540	541	542	545	547	550	550	548	545	546	550	550	547
6*	541	540	536	537	544	548	550	548	553	553	551	548	541	534	533
7	531	529	535	540	544	551	556	565	571	570	563	555	546	548	547
8	531	536	534	534	534	540	546	559	567	567	565	566	562	558	554
9**†	540	541	541	542	543	546	552	559	564	559	557	555	547	538	535
10**†	541	541	540	539	543	546	550	553	553	556	552	551	546	539	534
11*	545	541	541	543	545	548	552	559	565	565	560	557	552	541	536
12	544	549	551	555	567	572	558	555	545	543	523	496	488	476	478
13	511	510	513	519	523	522	526	531	530	529	529	528	528	523	530
14	508	512	519	537	533	523	529	522	520	522	515	515	511	512	512
15**†	514	517	519	521	523	524	527	528	527	526	525	522	519	524	524
16**†	525	525	526	526	527	529	532	532	533	535	534	534	530	527	531
17	535	534	534	536	538	537	538	536	535	527	528	529	523	521	522
18	523	528	532	538	537	538	541	539	535	529	529	529	526	528	530
19	526	519	530	526	533	532	528	533	532	532	524	524	521	512	509
20	527	523	524	524	523	526	531	534	537	532	528	519	508	503	506
21	522	523	527	529	532	535	537	540	540	538	541	543	543	546	546
22*	530	532	535	537	537	537	538	541	543	544	543	547	550	550	546
23**†	541	542	544	548	548	548	551	553	550	545	545	549	550	552	552
24	544	543	541	541	543	549	551	554	558	558	559	555	556	553	545
25	530	531	529	531	536	540	542	549	552	552	552	544	534	533	529
26	502	505	511	510	523	524	526	530	533	515	504	515	521	514	506
27	498	501	505	510	511	515	520	535	541	540	537	535	517	499	492
28	515	512	512	514	515	516	518	521	524	525	528	532	533	534	526
29	513	516	519	523	523	521	526	533	536	524	524	525	524	519	519
30	525	529	526	526	528	528	531	538	539	539	537	535	530	531	530
Mean...	527	527	529	532	534	536	538	541	543	541	538	537	533	530	528
Mean*...	534	535	536	537	539	541	544	547	548	547	545	545	542	539	537
Mean†...	532	533	534	535	537	539	542	545	545	544	543	542	538	536	535

DECEMBER, 1917.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

1	519	521	521	522	525	529	533	539	538	534	527	526	524	521	519
2	516	523	527	529	537	542	540	542	538	524	514	506	495	493	493
3	519	522	527	527	531	542	542	546	540	534	531	529	532	538	540
4	508	512	517	522	525	527	536	545	533	532	531	521	521	526	517
5	505	507	510	512	515	516	519	529	529	526	521	520	513	511	510
6*	509	511	513	516	519	525	529	537	540	534	526	524	520	516	513
7*	515	514	516	516	516	519	531	543	545	532	525	522	520	521	518
8	505	501	506	509	513	521	533	543	543	533	523	522	527	518	507
9	513	513	(513)	(514)	(515)	(516)	(517)	(518)	519	516	513	510	506	507	511
10†	518	519	520	522	522	523	524	528	528	523	521	515	506	509	514
11*	529	529	532	535	538	542	546	551	548	537	534	536	532	528	531
12*	534	531	531	533	534	534	534	539	535	529	526	528	532	534	534
13**†	530	530	531	532	533	533	534	540	539	532	526	521	520	520	520
14	529	530	530	530	532	534	538	544	549	538	522	526	528	532	533
15	520	527	530	530	530	531	532	538	545	543	540	535	535	533	531
16	526	526	525	527	532	540	559	578	557	550	542	507	498	480	470
17	452	457	461	466	468	476	479	482	489	493	485	487	491	486	485
18	481	494	501	504	499	499	492	495	500	499	492	482	475	478	475
19	477	478	478	480	480	483	487	495	500	495	491	488	484	484	484
20	503	505	501	501	507	508	512	517	517	512	520	513	511	512	512
21*	495	497	500	503	505	507	511	520	522	517	514	514	509	505	506
22**†	501	502	504	505	507	508	512	515	515	511	507	508	499	496	497
23**†	509	512	513	514	516	518	521	528	535	531	526	522	520	516	517
24**†	512	512	514	516	519	521	525	530	530	526	525	527	525	524	523
25*	522	523	523	523	525	528	528	533	536	534	533	533	526	520	515
26	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
27	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
28	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
29	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
30	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
31	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mean...	510	512	514	515	518	521	525	531	531	526	520	517	514	512	511
Mean*...	516	516	518	519	521	524	527	534	534	528	524	523	520	518	517
Mean†...	514	515	516	518	519	521	523	528	529	525	521	518	514	513	514

\*Ten least disturbed days.

†Five international quiet days. Dec. 24 used in place of Dec. 31.

## HOURLY VALUES OF HORIZONTAL INTENSITY.

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NOVEMBER, 1917.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.	
514	517	518	518	522	523	522	520	520	523	11 45	537	15 50	511	26 1
521	521	517	514	515	523	525	525	524	527	12 07	540	19 15	512	23 2
526	524	528	532	531	531	529	527	529	532	9 12	550	2 15	523	27 3
526	526	529	532	534	535	533	533	536	535	8 10	546	15 30	526	20 4
543	537	538	543	544	544	540	540	537	543	13 00	552	0 00	535	17 5
532	530	534	541	541	540	538	539	539	541	10 00	554	16 46	528	26 6
538	537	541	546	547	545	541	534	532	546	8 57	572	23 52	528	44 7
547	539	539	543	544	545	544	542	541	547	11 03	568	0 00	528	40 8
533	535	540	545	546	545	543	542	542	545	8 42	566	15 27	532	34 9
532	532	533	537	541	544	541	542	543	543	9 30	558	15 30	530	28 10
537	540	542	546	548	548	547	546	544	548	9 13	567	14 11	532	35 11
473	458	456	462	483	493	491	496	500	513	5 03	581	16 41	453	128 12
523	526	529	519	506	512	513	503	522	521	14 41	539	22 12	495	44 13
511	507	509	511	513	512	512	514	514	516	3 40	542	0 16	505	37 14
522	522	524	526	526	525	523	522	523	523	8 30	528	0 00	514	14 15
529	526	527	530	535	536	534	534	534	530	20 10	540	0 00	524	16 16
524	526	528	528	525	522	521	521	521	529	4 04	541	20 00	521	20 17
532	530	529	525	524	519	510	513	527	529	6 30	542	21 50	501	41 18
498	501	509	516	515	513	518	520	517	520	7 36	536	16 00	496	40 19
509	503	503	508	512	514	515	516	518	518	8 28	537	13 03	500	37 20
546	542	538	539	539	538	535	536	535	537	13 45	548	1 05	522	26 21
540	537	539	538	537	535	536	537	539	540	12 43	552	1 03	524	28 22
550	543	541	546	547	544	543	543	543	547	14 09	554	0 04	539	15 23
537	524	517	518	518	522	526	528	525	540	9 07	561	17 13	516	45 24
522	478	487	495	492	492	493	490	495	522	10 10	554	16 35	476	78 25
498	494	508	490	485	496	494	496	501	508	8 30	536	19 08	480	56 26
495	500	489	488	489	491	499	506	505	509	8 42	542	17 56	483	59 27
503	506	513	515	516	515	513	513	515	518	13 26	536	15 52	498	38 28
519	520	526	528	527	525	522	520	521	523	8 06	538	0 27	513	25 29
526	522	522	520	519	516	516	518	518	527	8 28	541	21 30	515	26 30
524	520	522	523	524	525	524	524	525	530				37	
534	533	535	538	540	540	538	538	538	540				23	
533	532	533	537	{533}	{532}	{539}	532	531	532	537				

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518	525	528	525	510	505	510	510	514	523	8 33	541	20 19	503	38 1
500	509	515	517	519	520	520	520	520	519	8 01	548	14 23	490	58 2
(540)	528	526	523	517	518	510	489	496	527	7 11	548	22 44	482	66 3
516	515	509	502	495	497	500	503	506	517	7 32	547	19 47	491	56 4
511	508	511	505	501	497	492	500	505	511	7 59	531	21 35	491	40 5
512	511	515	516	516	516	516	516	516	519	8 41	540	0 00	508	32 6
519	522	525	524	524	524	522	516	519	523	8 09	551	22 49	513	38 7
512	500	498	504	510	508	508	511	513	515	7 32	546	17 18	493	53 8
516	515	516	515	518	519	518	517	517	515	20 18	520	12 47	506	14 9
518	517	512	522	526	527	527	528	529	521	8 09	530	12 29	506	24 10
535	536	538	538	535	533	531	532	533	536	7 40	552	13 14	524	28 11
532	531	531	531	532	532	531	530	530	532	7 16	540	9 57	525	15 12
523	522	523	523	525	525	525	527	528	528	7 48	540	13 45	519	21 13
525	522	528	528	522	520	521	521	521	529	9 03	551	24 00	520	31 14
528	527	529	529	529	530	530	529	532	532	8 42	546	0 20	519	27 15
453	437	431	435	444	451	451	447	451	497	7 17	585	17 55	429	156 16
486	483	481	477	477	477	477	477	477	478	9 34	495	0 17	451	44 17
476	471	476	479	479	476	476	475	476	485	3 35	511	16 16	469	42 18
490	487	481	493	506	502	501	502	503	489	19 20	512	1 40	477	35 19
506	498	494	494	495	492	492	491	495	505	11 33	523	22 28	488	35 20
509	505	501	503	502	500	497	498	500	506	8 24	524	0 08	494	30 21
499	501	505	506	508	509	509	509	508	506	8 31	517	13 08	496	21 22
516	511	507	508	514	516	515	512	512	517	8 30	535	18 00	506	29 23
521	519	520	521	523	523	522	521	521	522	8 12	531	0 35	512	19 24
509	503	502	499	496	501	504	505	505	518	8 22	537	19 45	496	41 25
...	...	...	...	...	...	...	...	...	...	...	...	...	...	26
...	...	...	...	...	...	...	...	...	...	...	...	...	...	27
...	...	...	...	...	...	...	...	...	...	...	...	...	...	28
...	...	...	...	...	...	...	...	...	...	...	...	...	...	29
...	...	...	...	...	...	...	...	...	...	...	...	...	...	30
...	...	...	...	...	...	...	...	...	...	...	...	...	...	31
511	508	508	509	509	509	508	507	509	515					40
518	516	517	517	518	518	517	517	517	521					27
515	514	513	516	{519}	{515}	514	513	513	518					

JANUARY, 1918.

27500 $\gamma$  PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	525	526	530	533	533	533	536	542	543	535	527	522	523	525	530
2*	526	530	532	535	538	539	542	553	559	555	548	542	533	528	528
3	528	528	532	536	544	540	540	548	554	547	534	533	527	517	520
4	520	514	517	525	531	535	(535)	(541)	543	543	538	534	535	530	520
5	514	514	516	523	528	533	531	528	531	529	527	520	516	514	511
6	510	513	513	514	520	528	531	538	542	532	518	514	504	501	506
7*	517	518	520	521	523	525	528	532	532	527	520	515	515	509	508
8*†	528	527	527	527	528	528	528	534	541	538	(533)	536	533	521	517
9	526	530	532	534	536	538	540	547	548	541	537	531	527	525	521
10	533	535	537	538	547	539	537	546	548	541	542	540	537	535	528
11*†	522	523	522	527	530	529	529	534	541	542	537	534	529	524	520
12	534	536	538	541	539	541	548	556	552	546	523	516	526	536	529
13	497	502	503	507	509	512	515	521	528	518	499	501	509	501	504
14	494	500	503	509	511	513	516	521	526	521	513	512	511	510	510
15	514	519	519	518	517	518	521	530	535	532	525	515	512	519	521
16*	511	515	516	516	518	525	523	530	533	526	516	517	514	515	519
17*†	517	519	522	523	524	524	525	528	526	515	502	503	508	514	526
18*†	521	523	525	526	528	530	531	537	540	532	522	511	497	494	508
19*†	533	534	535	537	538	539	536	539	539	528	518	513	508	504	510
20	586	537	537	539	539	538	535	540	541	531	519	512	508	503	507
21	523	527	530	535	540	542	543	546	548	543	527	511	513	503	517
22*	511	516	518	519	521	525	529	533	534	530	517	511	515	519	516
23*	518	521	524	526	528	530	533	542	544	535	522	512	503	503	505
24	533	533	535	537	538	541	544	547	552	540	523	508	495	489	498
25	518	523	523	523	520	520	520	524	522	511	504	506	508	508	512
26	522	520	523	525	527	530	534	538	538	531	525	528	531	526	526
27	519	520	517	527	525	520	523	533	534	526	520	523	521	521	521
28	522	523	524	524	524	526	527	535	540	539	533	535	523	510	508
29	529	531	532	532	537	554	554	554	566	568	558	532	526	513	498
30	490	497	498	501	506	514	512	514	517	526	521	509	507	498	503
31	483	479	484	488	492	492	498	513	523	512	510	506	508	489	460
Mean....	519	520	522	525	527	529	530	536	539	534	524	519	517	513	513
Mean*....	520	523	524	526	528	529	530	536	539	533	524	519	516	513	516
Mean†....	524	525	526	528	530	530	530	534	537	531	522	519	515	511	516

FEBRUARY, 1918.

27500 $\gamma$  PLUS TABULAR QUANTITIES.

1	485	485	487	493	499	503	508	511	518	510	489	477	480	471	477
2	501	501	503	506	509	512	517	525	529	522	520	518	507	503	
3*	508	510	513	515	517	518	522	529	530	520	512	508	510	511	
4*	516	517	518	520	522	525	527	532	533	530	523	510	502	503	509
5	520	521	529	550	542	540	542	534	539	531	522	502	502	502	513
6	469	474	479	481	498	508	504	514	514	507	503	500	499	490	484
7	488	500	503	505	517	508	511	516	520	515	500	490	497	505	
8*†	515	515	516	516	517	519	520	523	529	531	527	523	523	526	526
9	516	517	518	522	526	531	537	546	557	557	550	545	539	534	536
10	498	501	502	503	510	510	512	525	540	552	556	556	537	525	527
11	499	498	508	503	505	508	509	516	522	528	526	514	515	514	513
12	477	469	484	479	480	491	500	518	516	514	499	484	474	464	451
13	456	448	450	457	478	475	476	485	491	486	480	472	473	465	461
14	460	459	453	462	468	477	483	494	498	496	490	483	479	478	480
15	485	489	492	503	506	504	510	513	520	517	507	495	498	486	504
16	501	501	501	504	510	512	516	519	523	528	526	521	510	503	504
17*†	505	507	510	511	512	512	514	522	528	525	520	515	511	509	512
18*	504	506	507	509	514	513	516	526	534	530	525	512	505	503	505
19*†	515	513	512	520	522	523	528	526	530	532	525	512	503	503	508
20*	515	515	517	519	521	524	530	537	543	543	542	538	534	520	508
21	495	483	498	506	508	511	524	531	539	541	533	522	514	505	504
22*†	508	508	509	511	516	518	521	528	534	536	533	526	525	519	513
23	517	517	517	517	517	520	523	528	533	535	537	528	528	533	510
24	478	493	491	494	495	502	507	511	513	511	508	502	497	493	492
25*†	506	509	512	512	514	517	520	526	526	528	520	518	513	513	515
26*†	520	523	518	518	516	516	523	534	544	545	540	532	526	518	511
27	517	518	520	523	525	527	531	540	549	558	561	554	547	534	516
28	478	492	494	499	501	504	513	526	532	528	532	530	530	528	523
Mean....	498	500	502	506	510	512	516	523	528	527	522	514	510	506	504
Mean*....	511	512	513	515	517	519	522	529	533	531	526	519	515	512	512
Mean†....	513	514	513	516	517	519	522	529	533	533	528	522	518	516	514

\* Ten least disturbed days.

† Five international quiet days.

## HOURLY VALUES OF HORIZONTAL INTENSITY.

65

JANUARY, 1918.

27500 $\gamma$  PLUS TABULAR QUANTITIES.

15 $^{\text{h}}$ -16 $^{\text{h}}$	16 $^{\text{h}}$ -17 $^{\text{h}}$	17 $^{\text{h}}$ -18 $^{\text{h}}$	18 $^{\text{h}}$ -19 $^{\text{h}}$	19 $^{\text{h}}$ -20 $^{\text{h}}$	20 $^{\text{h}}$ -21 $^{\text{h}}$	21 $^{\text{h}}$ -22 $^{\text{h}}$	22 $^{\text{h}}$ -23 $^{\text{h}}$	23 $^{\text{h}}$ -24 $^{\text{h}}$	Mean.	Maximum.	Minimum.	Range.	Day.	
536	539	533	532	533	532	526	525	525	531	8 00	544	12 43	522	22 1
532	530	532	533	534	534	533	531	533	537	8 48	560	0 11	524	36 2
529	535	533	535	533	547	513	502	520	532	8 05	556	22 28	495	61 3
518	520	520	515	516	512	513	513	515	525	9 00	545	20 34	510	35 4
522	524	522	520	518	517	510	504	501	520	5 18	535	22 56	497	38 5
508	506	512	518	512	513	515	515	517	517	8 30	543	13 21	499	44 6
514	520	523	526	529	529	528	528	528	522	8 20	533	14 00	505	28 7
519	525	527	526	526	525	526	526	526	528	8 46	541	14 18	517	24 8
528	533	530	527	528	528	532	532	533	533	7 50	550	14 34	518	32 9
531	(530)	(530)	(526)	523	523	523	522	521	533	8 11	550	22 37	521	29 10
516	513	516	523	525	528	528	529	529	527	9 16	544	16 54	513	31 11
521	520	517	509	483	482	486	489	493	523	8 08	559	19 52	473	86 12
504	499	498	507	509	507	497	499	506	506	8 30	528	22 38	491	37 13
507	505	504	509	509	513	514	514	514	511	8 41	528	0 32	492	36 14
510	518	512	503	512	510	507	507	506	517	8 25	537	18 33	501	36 15
521	521	523	522	519	517	517	515	514	519	8 32	535	0 00	506	29 16
535	533	532	525	523	523	523	523	521	521	16 05	540	10 46	501	39 17
523	530	531	529	532	531	531	532	532	525	8 20	541	13 00	490	51 18
519	528	535	534	533	534	534	532	529	529	8 19	542	13 30	500	42 19
515	528	535	535	534	528	514	516	521	527	8 09	543	13 13	503	40 20
523	520	513	509	506	513	514	507	508	523	8 27	551	13 32	499	52 21
519	522	524	525	524	521	515	517	516	521	8 29	536	0 00	510	26 22
507	516	525	529	532	532	533	532	533	524	8 20	545	12 49	501	44 23
515	521	518	516	517	515	509	505	510	522	8 42	556	13 10	487	69 24
518	524	527	523	523	524	524	526	519	17 20	528	10 26	502	26 25	
529	529	525	531	529	520	511	508	512	526	7 53	541	22 52	506	35 26
517	513	515	516	515	517	521	522	523	521	8 00	536	16 12	513	23 27
513	517	523	526	523	525	528	528	529	525	8 35	541	14 29	506	35 28
484	481	475	459	466	476	479	485	488	516	9 38	574	19 02	445	129 29
509	485	436	427	399	405	434	446	455	484	9 48	528	19 39	390	138 30
460	462	472	452	456	469	471	478	492	485	8 44	528	18 51	445	83 31
516	518	517	515	514	515	514	513	515	521					46
520	524	527	527	528	527	527	526	526	525					35
522	526	528	527	{525}	{525}	525	524	523	525					

FEBRUARY, 1918.

27500 $\gamma$  PLUS TABULAR QUANTITIES.

487	485	499	497	494	493	490	484	501	493	8 40	519	13 09	468	51 1
507	502	501	499	509	506	503	503	506	510	8 47	532	18 22	496	36 2
509	511	514	513	514	514	516	516	515	515	8 12	532	0 00	506	26 3
511	511	512	514	516	520	522	521	520	518	8 18	534	12 51	499	35 4
513	511	516	517	513	514	495	474	472	518	3 03	553	24 00	462	91 5
486	493	501	505	501	497	501	496	490	496	8 03	516	0 03	462	54 6
502	499	501	508	511	513	515	515	515	507	4 21	522	0 27	485	37 7
521	514	514	521	520	520	521	518	517	521	8 48	532	17 05	512	20 8
531	514	487	485	493	500	487	483	493	521	8 40	561	22 10	478	83 9
529	516	506	501	506	486	503	500	500	517	10 51	559	20 48	472	87 10
514	491	470	476	469	460	458	438	462	496	9 57	533	22 25	435	98 11
441	431	426	416	406	410	407	409	432	462	7 31	519	19 54	399	120 12
460	449	449	447	435	424	431	460	481	462	8 41	493	20 54	422	71 13
479	476	479	483	485	481	480	476	480	478	8 56	499	2 13	451	48 14
503	537	508	491	489	493	495	497	499	501	17 01	548	0 00	482	66 15
508	505	503	509	511	511	511	508	507	510	9 46	530	0 00	499	31 16
512	506	505	509	510	511	512	511	508	512	8 25	529	0 35	504	25 17
510	512	514	513	514	515	518	517	514	514	8 33	536	0 22	503	33 18
505	504	503	506	512	514	516	517	517	515	9 18	533	12 24	503	30 19
511	511	507	493	493	499	502	505	508	518	9 02	545	19 27	491	54 20
504	502	506	507	508	509	511	510	509	512	9 23	543	1 24	481	62 21
510	507	510	512	516	518	519	518	516	518	9 48	537	1 40	507	30 22
494	510	509	496	486	484	477	473	476	511	10 32	543	23 21	472	71 23
491	488	491	491	495	501	506	507	507	498	8 38	514	0 38	476	38 24
513	511	515	517	519	521	521	521	520	517	8 45	527	0 48	506	21 25
509	513	514	516	519	519	519	519	518	522	8 38	546	15 11	508	38 26
508	499	499	496	503	510	507	509	490	523	10 06	561	24 00	481	80 27
502	461	469	483	483	492	486	487	500	503	8 25	534	16 43	452	82 28
502	499	497	497	498	498	497	496	499	507					54
511	510	511	512	513	515	516	515	515	517					31
512	510	511	514	{510}	512	{518}	514	513	518					

MARCH, 1918.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	495	497	498	503	503	502	503	509	515	513	507	506	508	508	505
2	505	500	503	506	507	510	514	525	539	543	540	532	524	513	517
3	507	504	505	507	508	509	510	531	540	536	522	518	514	511	514
4*	501	502	506	509	509	511	515	522	527	525	522	518	514	507	507
5†	513	515	517	521	523	525	525	531	540	543	540	532	525	525	521
6†	517	515	517	526	527	525	526	531	540	543	543	544	541	534	531
7	519	520	520	521	522	523	525	530	534	534	533	532	531	529	531
8	371	358	363	395	406	409	418	433	439	436	429	435	424	420	(428)
9	454	456	455	462	475	486	486	496	506	506	506	507	507	498	486
10	480	480	481	481	483	487	492	502	511	520	519	512	500	494	482
11	478	477	479	486	490	493	501	511	523	531	532	520	519	496	478
12	473	480	470	466	462	470	478	478	484	486	492	487	488	489	480
13	484	484	482	483	487	489	492	497	501	500	502	508	510	506	499
14*	493	493	495	497	500	505	507	509	510	509	511	512	510	507	514
15	505	510	511	518	518	517	516	518	515	514	495	501	506	515	545
16	473	472	479	485	490	491	495	505	507	485	492	487	485	481	473
17*	486	487	489	493	497	502	499	501	502	501	500	500	498	495	492
18*	507	505	503	504	505	505	508	513	514	516	508	501	493	488	484
19†	495	495	496	499	503	506	510	523	529	526	518	512	510	503	502
20	505	507	512	528	524	516	519	531	537	531	523	515	507	499	503
21	498	497	503	503	508	509	511	512	506	506	501	496	491	495	495
22	494	501	502	500	504	505	504	506	508	510	508	511	516	530	530
23	486	500	496	496	500	503	504	502	500	500	504	508	509	507	509
24†	495	493	492	494	497	502	502	504	500	495	497	499	501	504	502
25†	501	501	503	502	504	507	510	513	513	516	518	518	516	519	518
26	512	516	517	518	519	516	520	523	520	514	515	510	507	513	513
27	494	501	502	500	504	505	504	506	508	510	508	511	508	507	507
28	497	498	503	507	505	508	513	517	522	529	537	541	545	548	537
29	504	502	498	505	503	504	506	511	512	513	522	529	528	521	518
30*	501	500	501	505	507	503	507	507	509	515	522	523	521	523	516
31	513	515	514	514	512	513	513	517	515	515	521	525	524	515	503
Mean...	491	492	493	497	499	501	504	510	514	514	513	512	509	506	504
Mean*...	501	501	502	505	507	509	511	515	518	519	518	517	514	510	509
Mean†...	504	504	505	508	511	513	515	520	524	525	523	523	520	517	515

APRIL, 1918.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

1*	508	508	508	508	509	509	510	514	518	531	536	534	530	530	523
2*	479	492	493	495	497	500	498	499	511	516	520	521	517	515	516
3	508	508	508	511	515	517	522	522	522	535	536	537	532	529	529
4	474	491	487	487	504	496	497	501	504	506	511	518	522	513	511
5	471	461	476	481	477	483	486	490	498	505	512	501	484	474	476
6	432	434	443	453	459	471	476	474	487	490	484	495	493	475	469
7	467	449	445	458	460	453	452	449	450	456	465	475	485	486	487
8	478	479	474	477	479	480	478	476	475	484	505	514	517	511	508
9	481	481	479	477	484	483	481	480	481	489	500	509	516	512	502
10	495	497	497	495	489	487	489	490	491	496	502	506	506	517	524
11	488	491	498	504	507	509	510	495	484	486	478	467	447	437	424
12	452	458	451	453	457	467	472	483	488	488	494	507	513	512	500
13†	477	479	480	482	481	481	483	484	487	494	500	506	513	519	514
14†	489	490	490	493	494	492	493	492	488	490	497	505	510	510	508
15†	491	494	496	497	501	505	509	513	512	513	519	522	521	523	518
16*	498	498	498	499	502	504	509	510	511	513	517	520	509	506	506
17*	499	499	503	503	505	509	514	519	521	524	531	534	531	532	522
18	482	489	494	502	507	510	517	518	516	537	533	528	523	511	506
19	469	454	464	482	479	482	490	497	497	499	507	509	509	510	509
20†	476	479	481	483	485	485	484	484	491	501	503	501	498	499	500
21	497	498	499	502	506	508	508	503	505	512	511	511	510	500	506
22*	493	491	489	492	495	492	491	489	492	504	513	515	510	500	496
23	482	489	493	493	497	499	491	492	499	503	504	509	507	501	502
24†	491	492	492	493	493	495	491	488	488	492	503	508	509	510	509
25	493	500	505	510	512	509	500	496	501	512	524	528	521	523	519
26	456	454	457	457	463	469	473	467	463	465	468	474	482	485	473
27	466	467	470	474	477	482	480	476	479	485	486	478	480	485	495
28	496	498	503	509	506	503	505	505	505	507	515	517	514	510	501
29	497	483	485	490	492	485	483	486	500	498	498	486	485	479	467
30	482	483	484	484	490	491	492	492	493	498	504	508	510	512	510
Mean...	482	483	484	487	490	491	492	492	494	500	505	508	506	504	500
Mean*...	490	492	493	494	496	497	498	499	502	508	514	517	515	514	511
Mean†...	485	487	488	490	491	492	492	492	493	498	504	508	510	512	510

\* Ten least disturbed days.

† Five international quiet days.

## HOURLY VALUES OF HORIZONTAL INTENSITY.

67

MARCH, 1918.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.
507	509	510	512	513	512	508	505	508	506	8 53	517 0 47	492 25	1
515	511	513	505	505	501	500	514	507	515	9 35	544 20 51	497 47	2
516	512	502	475	469	462	475	501	502	506	8 21	541 20 25	459 82	3
508	511	513	511	510	511	511	511	512	512	8 37	528 0 29	499 29	4
518	512	516	519	523	525	524	522	520	525	9 41	543 0 00	512 31	5
527	523	523	521	525	528	527	522	522	528	11 46	546 1 03	513 33	6
529	526	556	541	512	463	397	240	266	497	17 38	568 22 53	197 371	7
(436)	444	440	437	447	440	441	446	448	423	19 45	454 0 00	336 118	8
480	475	477	477	478	480	481	482	483	483	12 11	511 0 00	450 61	9
482	479	476	482	482	478	479	479	483	489	9 37	523 19 57	466 57	10
468	460	458	457	467	467	466	468	475	488	10 20	536 18 05	452 84	11
471	469	468	474	471	476	475	481	483	477	10 33	494 4 35	461 33	12
495	490	492	495	497	498	497	495	493	495	11 55	511 3 07	481 30	13
514	512	503	493	492	495	503	508	503	504	14 45	516 18 12	490 26	14
515	497	499	496	500	493	483	476	477	506	14 15	564 22 34	471 93	15
473	467	474	482	483	486	487	486	486	484	8 33	513 16 27	463 50	16
491	492	490	500	502	502	502	504	504	497	23 50	509 1 04	485 24	17
482	484	491	494	496	496	494	494	494	499	8 50	517 16 06	480 37	18
501	496	501	506	504	502	502	505	505	506	8 37	531 0 00	494 37	19
503	502	504	501	502	500	504	504	500	512	8 32	540 13 34	497 43	20
492	484	483	491	494	491	490	493	495	498	6 51	514 17 09	479 35	21
527	518	508	506	506	498	493	499	483	506	14 36	533 24 00	476 57	22
490	478	488	493	495	491	490	488	494	497	14 27	514 16 46	475 39	23
499	497	499	500	501	503	502	502	502	499	7 27	505 1 45	490 15	24
511	501	493	497	502	503	506	509	511	508	11 35	520 17 31	491 29	25
513	514	---	493	493	494	493	493	492	---	8 06	525 12 12	506 19	26
495	486	486	493	493	494	493	493	492	492	8 34	520 16 57	482 38	27
523	508	496	488	496	494	494	492	495	512	13 22	551 18 01	482 69	28
511	504	502	498	490	490	496	498	498	507	11 58	532 19 55	486 46	29
508	508	510	508	510	510	511	510	510	510	10 59	525 1 51	500 25	30
493	497	501	504	504	504	505	506	507	510	11 36	527 16 39	492 35	31
499	495	496	495	496	493	491	487	488	500				55
506	504	504	504	506	508	508	508	508	509				29
511	506	506	509	{505}	{505}	{511}	{512}	505	512				

APRIL, 1918.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

517	511	506	507	506	506	498	488	483	512	11 18	537 24 00	480 57	1
514	509	510	511	512	512	511	509	508	507	11 43	522 0 52	478 44	2
525	522	513	502	488	484	482	472	472	512	12 00	538 22 54	467 71	3
509	500	480	468	457	469	487	467	461	492	12 35	524 19 25	453 71	4
473	456	444	442	422	423	420	437	425	487	10 56	514 21 30	409 105	5
462	437	446	424	413	423	448	421	427	456	12 36	499 19 57	405 94	6
481	475	472	466	460	468	473	473	473	466	14 15	491 2 36	443 48	7
477	470	469	471	479	484	484	481	481	485	12 58	518 18 00	465 53	8
490	483	476	483	488	487	490	490	488	489	12 23	517 3 03	475 42	9
524	515	523	513	498	492	479	483	491	500	17 00	540 22 27	476 64	10
418	420	408	390	396	427	432	422	430	457	6 08	516 19 24	384 132	11
502	492	479	475	474	474	475	477	477	480	13 00	515 0 00	443 72	12
509	498	492	491	491	490	490	490	490	493	13 33	520 0 25	476 44	13
504	500	498	497	499	499	499	496	495	497	13 00	512 8 49	488 24	14
517	516	509	504	501	499	499	499	497	507	13 22	524 0 12	489 35	15
504	497	490	495	500	502	502	500	500	504	11 23	524 17 24	490 34	16
519	514	505	491	478	469	465	467	475	505	11 40	535 21 56	463 72	17
512	499	488	488	461	445	461	477	477	499	9 36	544 20 06	440 104	18
487	467	469	472	473	476	477	475	475	492	10 00	504 2 00	445 42	19
498	493	493	492	493	495	497	499	497	492	11 08	529 21 00	404 125	20
503	491	485	481	485	497	492	491	491	492	10 56	518 22 00	468 50	21
497	484	478	471	472	477	474	495	497	492	10 56	518 22 00	468 50	22
504	492	488	488	490	491	492	492	492	495	11 50	511 0 20	480 31	23
509	508	504	502	497	490	499	499	489	498	21 40	518 0 57	484 34	24
508	484	458	438	436	417	408	420	457	487	11 08	529 21 00	404 125	25
463	460	463	465	471	477	478	474	471	468	13 36	487 23 57	450 37	26
500	502	497	495	495	497	499	499	499	486	16 44	507 1 04	464 43	27
495	508	515	520	518	515	512	510	501	499	11 09	518 16 00	493 25	28
461	462	466	470	454	456	449	477	449	477	8 35	501 21 16	444 57	29
496	488	483	478	474	475	476	477	477	489				59
509	503	498	496	495	494	493	494	493	501				42
507	503	499	497	{496}	{495}	486	486	486	496				

## PORTO RICO MAGNETIC OBSERVATORY.

MAY, 1918.

27500 $\gamma$  PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	442	460	476	469	467	468	472	469	468	471	475	474	475	480	475
2	473	475	477	483	481	479	481	479	475	477	477	479	478	476	477
3	485	488	486	488	488	489	490	492	493	497	497	482	476	476	476
4	487	496	496	488	484	479	481	491	496	504	507	505	497	484	476
5	475	470	469	475	485	473	476	474	472	471	467	462	463	466	468
6*	501	494	492	490	491	493	491	493	499	510	518	519	516	511	507
7*†	488	488	488	493	492	492	491	490	495	513	531	542	541	535	527
8*†	496	494	496	493	491	491	493	489	484	490	506	522	529	529	520
9*†	508	505	506	506	505	504	500	496	499	508	511	513	510	507	507
10*	502	501	502	504	507	505	503	498	499	508	508	506	502	502	505
11	504	507	508	506	506	506	499	494	496	507	512	514	504	498	503
12	496	495	497	497	494	490	486	492	495	503	509	506	500	497	497
13	495	493	492	494	498	493	499	498	501	504	499	488	485	489	486
14	502	501	500	507	503	499	500	501	502	505	510	515	521	520	513
15	493	498	503	498	494	497	491	508	511	512	499	497	496	485	485
16	478	479	480	483	484	489	495	504	507	513	522	532	536	539	530
17	377	383	387	398	426	419	401	404	403	404	407	418	433	430	424
18	461	478	457	454	455	452	456	448	448	454	447	448	451	455	458
19	467	463	463	469	470	472	474	476	483	481	483	483	482	482	472
20	477	477	474	465	465	465	462	465	469	472	464	462	469	473	468
21	473	478	473	468	469	465	466	468	472	475	471	476	479	476	474
22	481	479	475	478	473	474	483	488	488	490	493	501	498	493	493
23	484	486	488	492	488	487	492	497	504	510	518	519	514	504	497
24*	492	491	489	485	485	484	488	488	490	496	500	499	498	499	504
25*	498	489	487	490	489	488	490	488	484	479	476	481	486	476	472
26*†	490	490	492	494	495	494	493	494	494	497	500	500	493	488	489
27*†	492	491	491	491	490	490	495	496	499	508	513	518	517	510	507
28*	499	498	499	498	498	498	501	498	497	502	510	516	516	512	505
29	500	501	505	506	496	493	493	488	486	490	503	508	513	515	(503)
30	491	486	485	485	486	491	488	484	491	498	501	503	501	493	486
31	486	487	489	489	489	489	489	494	499	502	504	505	500	494	484
Mean....	484	485	485	485	485	484	484	485	487	492	495	497	496	493	490
Mean*....	497	494	494	494	494	494	494	493	494	501	507	512	511	507	504
Mean†....	495	494	495	495	495	494	494	493	494	503	512	519	518	514	510

JUNE, 1918.

27500 $\gamma$  PLUS TABULAR QUANTITIES.

1*	490	493	494	494	494	496	498	500	502	505	508	507	502	498	494	492
2*†	497	497	496	497	497	498	503	508	516	523	523	523	513	503	498	
3*†	498	498	501	503	503	503	502	505	512	517	514	509	498	495	499	
4*†	506	504	504	503	504	505	511	516	522	531	537	542	539	531	525	
5*	497	495	495	496	496	495	500	509	525	543	547	542	526	515	507	
6	501	501	503	506	502	502	506	503	501	504	508	505	500	504	503	
7	490	490	490	493	497	498	495	494	496	507	513	510	504	497	489	
8	502	501	501	501	501	501	502	501	507	513	519	525	529	528	520	
9	505	505	508	506	508	509	511	513	511	517	528	544	545	531	503	
10	491	490	495	495	487	474	452	459	432	425	418	424	412	404	399	
11	462	462	469	467	463	464	473	479	473	471	476	469	468	470	467	
12	465	452	446	451	451	454	458	461	462	456	452	461	475	480	486	
13	460	463	466	466	467	469	469	472	481	490	491	488	482	483	484	
14	466	472	481	476	475	473	477	467	454	458	471	477	475	473	475	
15	478	489	487	480	481	480	478	471	477	479	478	478	478	479	479	
16	493	482	471	471	474	470	475	482	484	484	490	483	474	473	462	
17	482	482	478	475	472	472	475	478	480	486	483	481	482	485	483	
18	477	479	477	477	480	481	484	484	488	491	492	490	491	487	481	
19*	482	480	481	481	482	481	485	492	501	487	519	518	511	500	490	
20	493	494	494	493	492	492	484	479	488	502	509	513	508	501	489	
21	487	488	495	497	498	496	493	489	479	489	494	501	514	518	522	
22*	501	498	501	496	491	504	504	511	514	527	534	531	531	526	513	
23*	495	496	496	497	496	495	494	494	494	496	503	512	513	506	496	
24	501	500	498	497	492	491	498	501	509	520	522	514	498	484	479	
25	497	499	499	498	498	497	497	496	498	502	510	508	508	510	508	
26	497	500	498	499	500	503	508	507	508	509	515	520	522	517	511	
27	469	472	475	476	475	477	476	471	476	489	502	510	511	510	507	
28	493	496	493	495	497	500	505	502	498	496	497	501	503	504	507	
29*†	496	497	499	500	500	503	506	511	512	506	505	509	519	529	531	
30*†	495	494	493	495	496	497	495	495	496	500	509	514	512	512	505	
Mean....	489	489	489	489	489	489	491	492	493	498	502	504	501	498	493	
Mean*....	496	495	496	496	496	498	500	504	510	514	521	520	515	510	504	
Mean†....	498	498	499	500	500	501	503	507	512	515	518	519	516	514	512	

\* Ten least disturbed days.

† Five international quiet days.

## HOURLY VALUES OF HORIZONTAL INTENSITY.

MAY, 1918.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.	
461	463	468	478	483	483	483	486	478	472	22	00	490	52	
477	476	481	486	488	486	483	483	477	479	20	00	490	18	
485	484	487	492	491	492	492	491	487	488	10	06	499	26	
474	474	480	483	486	489	488	479	477	488	10	45	508	4	
460	468	472	477	475	477	481	481	479	472	4	07	495	5	
503	495	489	491	493	496	494	493	490	499	11	48	520	6	
514	503	498	497	499	501	500	499	498	505	11	49	543	7	
514	507	504	504	508	507	498	500	503	503	13	04	531	8	
499	486	492	503	504	505	505	503	501	503	11	18	514	9	
506	501	498	497	499	502	504	505	506	503	10	04	511	10	
505	495	494	500	491	475	475	488	500	499	11	30	517	11	
497	491	489	492	486	484	486	489	492	494	10	57	512	12	
487	493	496	498	500	503	509	509	507	497	21	52	512	13	
504	501	501	481	487	489	488	490	493	501	12	15	523	14	
480	474	467	486	490	482	473	478	480	491	9	18	521	15	
480	432	395	384	371	342	387	399	375	464	14	06	545	16	
406	429	437	457	444	443	450	462	477	422	23	04	487	17	
464	463	447	453	453	460	456	470	468	456	1	08	487	18	
470	461	461	468	472	464	483	476	472	473	21	18	497	19	
467	468	467	475	470	468	482	468	478	470	21	24	492	20	
474	477	475	474	477	476	470	470	483	473	23	24	487	21	
493	494	492	486	484	478	486	493	487	487	11	59	502	22	
492	487	485	485	486	486	490	491	488	495	10	05	520	23	
497	498	501	503	503	501	499	497	495	495	14	41	505	24	
472	474	479	481	483	486	487	488	490	484	0	16	503	25	
488	487	486	487	488	489	492	492	492	492	10	56	503	26	
502	494	493	493	497	499	498	498	498	499	11	54	518	27	
499	495	494	497	500	503	501	499	501	502	11	57	519	28	
(483)	466	453	457	462	458	464	469	479	487	13	08	517	29	
485	486	483	480	483	486	488	489	487	489	12	00	508	30	
476	480	490	488	489	490	493	489	488	491	11	13	508	31	
484	481	479	482	482	481	483	485	485	486				45	
499	494	493	495	497	499	498	497	497	498				31	
503	495	495	497	{494}	{496}	500	494	494	495	500				

JUNE, 1918.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

## PORTO RICO MAGNETIC OBSERVATORY.

JULY, 1918.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	507	506	507	507	509	514	517	502	503	513	525	526	510	498	494
2	503	501	503	504	505	507	511	514	521	528	536	529	522	525	518
3	485	485	487	490	487	488	488	488	486	482	485	491	493	496	499
4*	492	489	497	498	493	495	500	503	505	506	514	514	508	506	511
5*	493	496	496	495	493	493	494	500	520	527	526	527	527	524	519
6*	493	493	495	496	495	493	494	493	492	495	502	512	513	513	508
7†	498	497	497	496	492	495	498	500	506	517	528	529	530	529	525
8	474	472	478	477	485	477	477	477	482	491	494	501	506	501	500
9	491	495	495	488	483	485	484	477	481	484	496	500	500	502	507
10	485	486	487	488	488	490	492	498	510	518	526	532	527	521	517
11	480	486	473	488	468	469	471	471	475	482	490	484	479	481	488
12	481	478	476	478	477	479	479	478	479	487	502	517	520	517	510
13	477	484	485	485	482	484	486	481	490	492	505	520	522	512	(507)
14	504	505	505	503	505	505	507	508	512	516	521	525	530	537	539
15	488	492	492	488	490	485	481	483	487	494	494	493	500	503	503
16*	496	489	487	488	489	488	489	493	499	509	517	517	512	512	504
17*	491	493	491	489	489	488	491	494	503	508	513	515	510	503	504
18	481	484	480	486	490	486	485	486	498	511	523	521	509	501	499
19††	494	495	494	496	494	494	495	497	504	516	516	519	516	510	503
20††	508	504	505	505	504	504	506	511	522	527	526	523	518	510	506
21††	511	508	505	500	498	498	506	515	525	532	533	531	523	514	507
22††	506	505	504	503	504	507	512	520	530	540	546	539	531	523	516
23††	502	503	504	502	508	506	506	517	528	533	535	532	527	521	513
24	499	496	500	503	501	500	500	505	520	539	551	559	554	541	527
25	517	515	513	504	512	506	506	510	512	516	518	508	486	468	456
26	474	469	472	479	480	478	481	478	477	483	490	497	489	473	469
27	477	481	484	484	486	488	490	493	510	519	519	514	508	500	499
28	462	468	479	472	474	477	479	476	478	483	486	491	491	474	449
29	465	458	466	480	470	471	477	488	491	490	497	500	488	471	450
30	466	469	489	486	472	474	485	486	483	485	482	480	476	470	468
31	478	469	470	473	477	477	481	486	491	492	494	496	496	494	(484)
Mean... .	490	489	491	491	490	490	493	494	501	507	513	514	510	505	500
Mean*... .	499	498	498	497	497	497	499	504	513	519	523	523	518	514	509
Mean†... .	503	502	501	500	499	500	503	509	517	526	530	528	524	517	511

AUGUST, 1918.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

1*†	483	481	480	482	481	486	493	493	489	490	495	505	507	499	491
2	491	492	488	486	469	467	476	485	483	486	493	498	503	495	486
?	457	453	458	459	460	462	457	457	464	477	486	480	480	476	469
4	479	478	478	480	479	478	481	483	479	484	493	498	496	496	493
5	478	483	485	482	482	484	484	486	480	483	487	491	487	473	471
6	465	472	474	474	474	473	472	475	482	482	482	488	489	484	484
7	481	479	472	474	476	475	473	472	479	492	501	506	500	495	492
8	489	481	485	481	471	469	467	466	471	475	476	475	477	479	478
9	478	476	488	485	473	471	471	475	486	497	501	498	493	487	480
10*	479	478	478	479	478	481	481	481	488	499	502	503	502	495	496
11	479	481	479	481	486	481	483	488	487	481	478	490	495	490	487
12	486	480	492	486	479	475	476	478	482	491	501	503	496	488	486
13	486	491	486	479	476	481	483	491	495	492	494	499	507	504	493
14	477	478	485	488	486	484	485	486	494	501	504	506	496	488	482
15	466	473	477	478	477	477	479	482	481	485	485	492	537	545	523
16	446	438	438	449	449	466	440	438	456	466	466	456	436	424	430
17	441	445	446	446	446	447	446	446	455	472	484	491	490	486	474
18*††	464	459	458	456	457	459	464	470	483	498	504	504	502	500	493
19*††	471	469	469	469	469	470	468	472	490	510	522	525	523	512	502
20*	482	476	473	467	467	465	469	474	485	496	492	490	487	479	467
21*††	467	467	465	465	463	464	463	461	469	489	506	513	510	501	493
22*††	469	470	471	470	468	472	474	468	463	466	473	478	480	470	465
23*	470	473	473	473	470	472	471	474	471	475	476	475	477	479	478
24	473	467	465	469	473	468	464	460	462	472	484	483	477	470	452
25	448	449	454	455	467	457	455	459	462	451	447	448	445	431	434
26	438	460	453	466	465	457	460	462	454	442	458	459	466	473	479
27	462	462	462	462	461	463	460	456	455	467	475	475	472	475	469
28	461	461	461	464	463	467	464	464	471	484	495	498	486	477	472
29*	461	460	460	461	461	463	462	461	463	466	477	482	480	472	466
30*††	463	460	460	460	461	463	462	461	466	477	482	480	472	466	461
31	467	467	468	470	470	471	471	474	491	506	508	508	503	498	496
Mean... .	471	471	471	472	470	471	470	472	477	484	490	493	492	486	480
Mean*... .	471	469	469	468	468	470	471	472	478	490	497	500	497	489	483
Mean†... .	470	467	466	466	466	468	470	471	479	493	502	505	503	496	488

\* Ten least disturbed days.

† Five international quiet days.

## HOURLY VALUES OF HORIZONTAL INTENSITY.

71

JULY, 1918.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

15h-16h	16h-17h	17h-18h	18h-19h	19h-20h	20h-21h	21h-22h	22h-23h	23h-24h	Mean.	Maximum.	Minimum.	Range.	Day.		
433	479	485	490	491	488	503	505	504	503	11 14	530	16 10	477	53 1	
502	502	495	476	466	482	485	486	483	504	10 52	536	19 17	460	76 2	
497	486	484	487	492	493	490	488	488	489	14 54	500	10 07	479	21 3	
507	494	491	495	498	499	494	492	493	500	11 03	517	1 55	487	30 4	
507	495	492	490	492	495	496	495	495	504	9 56	528	18 58	488	40 5	
502	491	488	488	490	493	495	496	498	497	13 31	514	17 44	486	28 6	
518	512	516	520	522	511	507	492	475	509	11 15	530	23 52	466	64 7	
489	482	484	482	475	467	471	482	489	484	12 27	506	20 15	466	40 8	
497	470	470	469	470	476	483	483	481	486	14 14	509	17 00	463	46 9	
509	496	482	458	458	444	468	471	474	493	11 38	533	20 35	439	94 10	
477	467	460	460	467	472	463	458	469	473	14 45	490	22 30	456	34 11	
507	499	493	487	482	482	480	480	477	489	12 13	522	2 15	474	48 12	
(502)	497	493	499	505	499	501	498	505	496	12 10	524	0 37	476	48 13	
516	509	504	488	491	492	504	490	487	508	14 24	548	18 18	483	65 14	
501	492	489	485	487	498	490	488	489	491	14 10	505	6 05	477	28 15	
494	496	493	492	488	487	489	490	490	496	10 38	519	3 00	486	33 16	
503	504	505	507	511	502	490	486	483	499	11 18	515	22 07	481	34 17	
498	492	493	493	497	497	495	495	496	496	11 06	523	2 45	476	47 18	
499	495	501	507	507	508	511	511	511	504	11 04	520	2 00	493	27 19	
501	498	502	505	509	511	513	514	511	510	9 24	529	16 39	497	32 20	
500	495	498	502	503	503	505	506	506	509	10 24	534	16 33	494	40 21	
511	504	503	502	501	499	497	497	500	512	10 24	547	21 56	494	53 22	
510	501	503	497	500	504	504	503	499	511	10 30	538	18 25	493	45 23	
512	493	493	497	499	499	497	500	513	512	11 24	560	16 50	490	70 24	
447	465	466	464	469	471	473	475	475	490	10 15	521	15 07	434	87 25	
476	474	472	459	451	453	460	471	471	474	11 51	499	19 30	449	50 26	
493	491	490	488	478	469	477	483	473	491	10 06	521	20 33	467	54 27	
444	429	426	431	419	419	445	454	465	461	12 29	494	20 24	415	79 28	
449	437	442	457	458	464	469	460	460	469	11 18	502	16 56	433	69 29	
469	465	454	457	460	467	471	470	472	473	2 51	503	17 34	452	51 30	
474	(470)	(471)	(477)	480	478	479	482	484	481	8 52	496	... ...	...	31	
493	486	485	484	484	485	487	487	488	494				50		
503	497	498	498	500	500	499	499	499	504				36		
506	501	504	507	{500}	{502}	{508}	{506}	504	504	509					

AUGUST, 1918.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

484	474	476	483	485	486	487	488	491	488	12 56	507	17 00	473	34 1
472	459	449	440	444	439	453	469	482	475	12 50	511	20 15	430	81 2
459	454	455	462	476	476	478	478	480	467	10 44	488	1 25	450	38 3
493	474	462	469	469	471	475	478	478	481	14 59	501	17 15	460	41 4
472	465	461	460	468	472	487	483	472	478	11 04	493	16 56	453	40 5
477	471	463	459	463	470	473	475	477	475	12 19	493	18 10	454	39 6
471	466	473	474	486	485	480	483	496	483	11 21	507	15 52	450	57 7
478	478	474	466	458	464	474	466	481	474	0 05	494	19 11	456	38 8
480	479	467	464	464	474	470	464	473	479	10 49	503	17 45	459	44 9
504	497	488	477	468	472	468	481	487	486	16 00	507	19 56	462	45 10
481	471	473	473	471	478	476	475	480	481	12 48	497	17 00	468	29 11
482	485	485	484	486	486	486	483	482	486	11 36	505	5 08	474	31 12
478	467	460	459	466	468	470	470	473	482	12 20	518	17 58	455	63 13
480	468	458	453	463	461	461	461	458	479	11 42	507	18 59	449	58 14
475	405	413	395	397	403	411	425	455	464	13 18	584	18 51	386	198 15
435	434	431	434	437	438	444	447	447	444	5 32	474	7 08	422	52 16
468	461	454	454	460	461	464	467	475	462	12 09	492	0 40	433	54 17
483	474	469	471	471	469	471	470	470	476	10 54	506	3 34	455	51 18
492	483	473	474	477	480	481	481	481	486	11 27	527	6 35	467	60 19
459	457	456	458	462	463	466	470	470	472	9 39	497	17 18	456	41 20
484	470	464	466	468	470	469	469	471	476	12 05	514	7 26	459	55 21
459	454	456	457	465	470	471	474	474	468	12 33	481	16 00	450	31 22
471	471	474	476	477	479	476	477	478	477	11 08	499	0 52	468	31 23
454	448	432	419	408	405	415	426	461	454	10 55	487	20 34	400	87 24
444	...	...	...	...	...	...	...	...	...	4 09	477	13 49	429	48 25
479	471	463	447	439	443	442	444	450	455	4 16	471	19 30	432	...
458	460	458	456	448	442	449	451	456	455	4 16	471	9 16	437	34 27
460	455	454	454	459	462	461	460	459	462	11 02	477	18 19	451	26 28
477	468	463	459	460	460	462	463	462	471	11 45	503	0 15	459	44 29
462	462	459	457	457	455	460	466	467	464	10 33	482	20 25	454	28 30
462	452	450	449	459	429	410	427	433	468	10 23	508	21 24	399	109 31
473	464	460	459	461	462	464	466	471	473				53	
478	471	468	468	467	{466}	472	468	470	476				42	
481	473	468	470	{472}	{472}	468	470	472	477					

## PORTO RICO MAGNETIC OBSERVATORY.

SEPTEMBER, 1918.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	436	439	448	445	449	448	448	450	453	460	465	470	476	466	439
2	450	449	453	458	454	448	448	452	457	464	471	472	472	473	473
3	463	461	441	443	445	444	438	442	455	469	482	477	465	472	476
4	458	464	459	455	450	449	447	432	455	462	475	476	465	458	451
5	456	456	459	454	451	444	444	451	460	464	458	449	441	441	437
6	462	459	459	460	458	455	451	448	452	468	478	470	465	460	457
7	456	459	460	455	457	457	451	436	433	446	456	459	456	454	456
8	459	469	468	457	459	464	449	440	439	446	454	456	461	454	454
9*	459	458	461	462	464	461	461	457	456	464	477	485	487	492	487
10*	460	460	462	461	459	460	458	453	450	449	451	457	462	465	470
11*†	458	461	462	463	463	464	465	465	463	460	461	457	454	456	455
12*†	457	456	457	460	460	463	463	466	472	474	472	470	470	478	479
13*	452	454	466	467	466	466	468	473	471	472	474	468	463	463	463
14*	457	459	462	467	468	463	468	468	474	477	481	473	468	468	463
15†	452	459	460	459	457	458	459	461	465	466	468	469	465	462	464
16	428	435	438	443	450	458	461	464	471	474	479	478	457	448	457
17	449	442	442	442	446	450	445	440	424	427	434	428	414	406	410
18	448	455	439	429	424	424	429	431	429	438	446	446	438	434	429
19	387	399	420	431	426	436	437	427	425	425	412	401	402	408	404
20	419	429	437	429	431	435	433	436	426	428	430	429	425	426	425
21	457	452	450	468	437	428	415	394	369	361	350	340	341	350	351
22	399	394	396	403	404	407	402	395	389	389	394	396	391	385	373
23	396	403	405	410	414	419	419	412	407	402	398	392	394	398	409
24*	431	434	445	445	447	441	435	441	435	432	431	420	403	407	409
25*†	428	435	435	430	433	435	438	444	446	449	453	445	440	440	436
26*†	432	433	435	441	443	445	450	455	458	461	463	467	464	454	446
27*	427	434	440	442	444	450	451	455	464	465	464	455	445	445	451
28	439	435	441	442	450	451	464	469	473	460	475	480	464	462	447
29	441	438	441	445	447	436	439	442	443	450	456	460	455	449	427
30	433	430	431	429	426	432	439	438	437	434	439	444	433	439	440
Mean....	442	444	445	446	446	446	446	445	445	447	451	450	445	444	441
Mean*....	446	448	452	454	455	455	456	458	459	460	462	460	456	457	456
Mean†....	445	449	450	451	451	453	455	458	461	462	463	463	460	458	456

OCTOBER, 1918.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

1	425	432	435	435	442	439	436	439	438	440	443	441	444	448	449
2	448	447	437	436	437	437	437	439	446	450	444	451	455	451	453
3	459	446	433	436	440	438	438	444	449	451	452	449	446	435	435
4	429	432	430	430	438	435	430	441	449	452	451	446	449	446	440
5	440	439	440	448	445	443	444	448	453	478	485	484	485	482	474
6	444	439	436	439	439	441	440	439	440	440	439	440	448	447	447
7	442	445	446	450	450	450	447	445	450	459	473	478	470	466	464
8	445	444	451	447	445	455	452	453	454	449	450	433	421	409	389
9	378	382	393	407	416	419	419	426	430	435	440	443	440	437	432
10*	423	426	426	426	431	433	431	433	441	444	449	454	454	449	446
11*†	439	441	441	443	446	447	447	448	447	447	454	458	467	466	460
12*†	451	451	453	457	460	462	461	463	(465)	(465)	(465)	(465)	464	465	455
13*†	458	457	459	461	462	463	462	462	459	461	461	459	456	456	455
14*†	460	461	463	463	464	466	466	467	465	461	457	459	462	465	463
15	465	467	463	461	460	465	465	473	475	466	467	458	442	438	431
16	423	413	387	388	397	428	432	401	398	372	337	342	330	320	315
17	381	379	381	394	401	397	398	385	393	391	366	376	369	385	386
18	414	412	423	424	423	427	427	423	443	450	445	449	448	426	408
19	427	429	425	424	424	426	428	423	424	433	423	413	437	446	439
20	411	415	419	421	433	440	431	429	431	433	423	408	399	403	403
21	418	420	425	434	433	433	428	425	433	439	440	440	436	432	427
22	418	422	425	434	436	433	433	428	432	427	422	418	411	411	417
23	435	437	436	439	443	450	448	449	450	454	458	456	447	441	433
24	413	417	425	429	438	441	443	442	447	449	463	460	455	450	446
25	439	440	441	445	449	450	445	448	460	463	465	456	456	452	443
26*	436	438	439	442	442	443	445	448	454	457	463	465	467	457	444
27*†	445	443	445	446	447	450	456	462	468	471	473	472	467	456	
28*	449	450	450	452	454	455	457	456	459	455	446	440	445	444	
29*	438	439	438	439	441	441	445	447	448	454	456	456	456	449	
30*	441	443	445	449	447	448	451	455	460	464	466	464	458	462	462
31	445	429	433	437	423	411	408	414	421	423	416	426	443	441	430
Mean....	434	433	434	437	439	441	440	441	444	446	445	444	443	440	435
Mean*....	444	445	446	448	449	451	452	454	456	458	460	460	458	453	
Mean†....	451	451	452	454	456	458	458	460	461	462	463	465	463	458	

\* Ten least disturbed days.

† Five international quiet days.

## HOURLY VALUES OF HORIZONTAL INTENSITY.

73

SEPTEMBER, 1918.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.	
431	427	422	435	439	453	448	448	450	448	12 43	479	17 24	417	62 1
468	457	458	463	459	442	448	452	462	458	14 24	476	20 24	434	42 2
466	455	445	447	458	447	460	452	445	456	10 35	487	2 32	438	49 3
448	436	441	446	448	449	448	449	455	453	10 56	479	7 20	423	56 4
439	441	447	451	456	460	459	460	459	452	9 28	466	14 19	431	35 5
452	447	447	438	441	452	458	458	455	456	10 35	480	18 48	433	47 6
446	445	451	458	458	451	452	459	453	453	11 52	461	8 34	427	34 7
441	441	447	451	451	457	468	472	463	455	22 34	475	16 30	438	37 8
477	469	462	465	457	458	460	460	460	467	13 30	495	1 00	454	41 9
474	472	464	456	457	465	463	460	458	460	16 27	478	9 20	448	30 10
459	461	463	463	457	455	458	455	456	460	18 11	467	12 25	452	15 11
477	479	477	476	476	475	470	467	460	469	13 41	481	0 17	455	26 12
456	454	453	455	458	458	459	459	458	462	10 49	476	0 48	447	29 13
457	456	456	459	459	456	453	451	449	463	10 19	483	23 19	447	36 14
464	463	459	459	448	433	424	417	408	454	11 03	470	23 30	397	73 15
458	446	418	415	426	414	444	454	435	448	11 11	481	17 47	404	77 16
414	418	414	417	427	437	442	443	445	432	0 33	460	13 23	404	56 17
425	419	428	433	428	421	420	408	392	430	1 24	459	23 32	388	71 18
403	399	392	413	422	415	419	421	433	414	5 52	444	17 15	381	63 19
423	418	422	424	425	424	433	430	446	428	23 43	460	0 49	414	46 20
347	358	350	348	345	367	386	393	410	386	3 29	486	18 55	335	151 21
379	378	389	400	409	410	420	410	402	396	21 44	422	14 10	370	52 22
420	423	426	431	433	430	429	432	429	414	19 15	433	11 26	388	45 23
409	410	408	407	419	426	425	424	424	425	4 46	449	12 23	401	48 24
431	423	424	428	426	430	431	439	433	436	11 30	454	16 52	420	34 25
448	449	451	451	448	448	447	445	435	449	11 53	468	0 08	430	38 26
450	444	449	451	451	450	449	439	449	449	10 24	467	0 58	422	45 27
446	433	424	427	431	428	430	435	439	448	11 00	483	17 48	420	63 28
424	414	415	422	428	431	432	413	415	436	11 24	462	17 58	410	52 29
439	437	437	434	437	447	428	449	433	436	22 23	462	0 05	415	47 30
439	436	435	437	439	440	442	442	440	443					50
454	452	451	451	451	452	452	451	447	454					34
456	455	455	{444}	{446}	{451}	{448}	446	446	454					

OCTOBER, 1918.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

438	422	432	434	440	446	432	437	445	438	14 23	454	16 18	412	42 1	
442	428	438	439	437	441	439	435	439	442	12 22	458	16 24	425	33 2	
440	425	438	434	428	430	443	433	431	440	0 29	462	20 32	422	40 3	
434	425	426	434	438	438	438	438	438	438	9 29	454	17 50	421	33 4	
457	430	427	427	427	440	437	430	432	450	10 44	489	19 33	421	68 5	
443	431	427	427	438	435	442	439	434	439	12 49	453	18 12	422	31 6	
454	444	445	449	445	446	445	447	450	452	11 48	478	16 51	440	38 7	
380	373	376	362	354	351	345	353	356	410	5 29	461	21 17	340	121 8	
427	423	424	431	431	426	429	423	421	422	11 23	445	1 09	375	70 9	
442	442	441	439	437	440	441	438	438	438	11 58	456	0 16	417	39 10	
457	447	449	455	458	458	458	453	453	452	12 38	469	0 03	439	30 11	
456	455	456	456	452	455	457	456	456	458	7 57	465	0 46	451	14 12	
453	458	461	461	461	461	461	461	460	460	11 18	463	15 06	453	10 13	
462	458	467	474	476	476	473	473	470	465	20 04	477	10 49	455	22 14	
435	434	437	454	454	448	430	426	400	450	7 52	481	24 00	388	93 15	
302	332	351	366	377	385	381	407	388	374	5 58	460	15 41	293	167 16	
366	368	386	394	397	402	386	409	411	388	23 54	414	16 00	351	63 17	
398	401	399	414	413	414	415	419	420	422	9 15	452	15 20	394	58 18	
425	418	412	383	376	383	408	418	410	419	13 34	449	19 53	370	79 19	
401	405	411	417	416	409	403	402	411	416	5 32	443	15 00	398	45 20	
417	410	414	419	426	429	423	416	413	426	9 52	442	16 44	407	35 21	
423	425	429	428	431	434	433	435	426	426	3 30	437	12 50	410	27 22	
422	418	416	418	421	416	412	412	410	434	10 44	460	21 48	409	51 23	
439	419	425	434	436	431	434	436	438	438	10 34	466	0 00	409	57 24	
439	439	435	439	438	432	436	437	437	445	10 26	471	20 13	429	42 25	
439	438	441	444	440	443	447	447	445	447	12 10	469	0 44	435	34 26	
450	443	444	444	445	449	452	452	450	454	11 43	474	1 53	443	31 27	
441	438	440	439	434	438	437	435	438	446	9 48	464	19 20	430	34 28	
434	436	437	438	434	441	443	443	442	443	12 07	458	19 23	433	25 29	
453	450	451	444	437	446	446	450	443	451	11 00	469	19 29	433	36 30	
418	414	413	417	425	428	428	430	431	425	0 46	448	6 40	402	46 31	
429	424	427	429	430	431	431	432	430	436					49	
449	446	449	449	447	451	452	451	450	452					28	
456	452	455	458	{450}	{451}	{458}	{460}	453	451	450	457				

## PORTO RICO MAGNETIC OBSERVATORY.

NOVEMBER, 1918.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	430	425	426	431	432	433	435	443	450	451	449	446	442	442	442
2*	440	440	439	440	440	444	443	449	448	443	444	443	434	440	441
3*	437	437	437	440	444	445	445	449	451	454	453	453	452	446	444
4	449	452	452	451	455	458	466	471	471	470	471	475	475	474	470
5†	449	448	451	450	457	464	464	473	479	483	486	488	484	478	465
6*†	456	457	459	461	463	465	467	474	478	478	475	468	466	463	458
7*†	461	459	461	467	469	467	469	474	474	472	471	467	461	454	454
8*	455	454	457	459	464	465	468	475	478	478	470	465	464	462	457
9*	454	456	459	461	463	467	470	470	475	480	481	480	469	460	455
10	454	454	456	463	466	467	470	478	474	473	474	474	472	453	442
11	439	428	421	425	435	451	449	456	462	445	442	445	439	424	405
12	415	434	421	429	439	443	440	435	437	428	423	421	411	392	387
13	430	421	427	443	447	434	437	444	436	433	448	453	436	424	401
14	433	431	432	436	441	446	448	460	467	465	464	459	454	446	416
15	428	436	429	429	434	435	442	448	452	448	443	443	431	398	400
16	409	423	423	434	434	443	448	452	459	455	451	444	435	426	419
17	423	425	429	429	429	433	440	449	441	434	428	423	419	411	
18	432	432	436	442	442	442	444	444	455	456	451	452	450	441	430
19	436	441	441	443	446	450	456	460	462	457	449	448	439	425	
20	435	439	442	450	459	452	460	470	473	473	470	469	472	473	464
21	453	456	456	456	459	461	462	459	456	451	447	444	442	438	440
22	443	446	452	461	466	460	454	455	455	457	455	457	456	454	
23	386	380	406	393	415	423	408	410	410	407	396	391	378	378	
24	407	405	405	408	409	410	418	431	439	436	437	432	433	425	401
25	417	416	423	422	424	427	433	439	439	439	441	439	431	428	431
26*†	434	434	434	434	436	439	443	446	453	453	448	442	444	442	439
27*†	438	426	433	433	434	438	442	451	454	454	451	448	442	439	441
28*	447	447	447	449	452	452	451	453	447	438	435	437	433	437	441
29	445	446	448	448	454	459	467	480	486	499	507	504	499	484	451
30	398	398	402	407	411	413	417	425	428	425	414	407	405	403	401
Mean...	434	435	437	440	444	446	449	454	456	454	452	451	446	439	432
Mean*...	447	447	448	449	452	454	456	461	464	463	461	459	455	452	450
Mean†...	448	447	448	449	451	453	457	464	468	468	466	463	459	455	451

DECEMBER, 1918.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

1	415	415	417	422	427	429	441	456	447	437	436	411	382	370	370
2	409	415	420	425	421	426	425	437	439	435	435	437	437	435	426
3	437	434	437	437	430	427	437	456	456	445	435	424	415	409	420
4*	422	425	434	432	433	436	442	452	456	458	455	442	435	425	425
5†	432	434	435	437	438	439	444	453	464	467	467	464	454	445	447
6*†	452	451	451	453	453	454	460	469	471	467	466	464	465	460	455
7	460	459	460	454	463	474	479	487	487	492	490	484	478	469	450
8	356	363	396	396	406	414	433	413	437	414	409	395	388	348	341
9	400	400	401	406	408	414	421	422	413	395	393	387	381	380	384
10	412	421	424	429	437	433	440	434	426	430	423	423	412	409	414
11	411	414	417	421	422	426	433	436	442	439	434	423	410	404	409
12	427	427	424	427	429	434	445	446	446	437	429	435	440	440	439
13*	426	425	425	430	433	436	438	449	449	445	445	440	442	412	424
14*	432	433	434	437	438	443	439	439	442	431	429	429	424	431	432
15*	432	431	435	437	437	442	447	452	454	451	451	445	440	435	433
16*	432	432	433	435	441	441	441	448	453	451	451	446	441	432	427
17	433	438	438	439	440	443	448	454	456	458	454	448	443	443	
18	439	438	443	455	454	455	455	467	472	468	467	470	472	447	450
19	411	413	415	419	431	434	434	440	452	450	449	434	436	402	400
20	428	426	426	429	436	444	438	450	459	458	458	452	429	417	415
21	412	414	419	416	419	422	425	435	440	444	448	443	434	428	419
22	423	423	423	426	430	433	437	450	463	465	468	471	468	457	
23	414	421	422	422	419	420	417	429	440	444	446	442	436	430	426
24	432	433	434	435	435	436	439	446	454	443	457	466	460	451	436
25	441	437	447	440	443	439	453	458	464	447	435	380	351	305	282
26	357	365	368	376	377	380	385	390	398	410	433	447	447	419	410
27	383	384	387	389	392	396	397	403	407	409	413	417	407	391	389
28*†	417	417	418	418	418	420	419	423	423	420	424	427	420	415	412
29*†	423	423	423	423	424	425	425	428	431	436	437	437	435	426	
30*†	435	435	433	432	433	435	438	443	446	445	442	438	434	435	437
31*†	443	441	440	441	444	444	446	445	445	440	442	434	421	418	
Mean...	421	422	425	427	429	432	436	442	446	443	443	437	430	420	417
Mean*...	431	431	433	434	435	438	440	445	446	444	444	441	436	430	429
Mean†...	432	432	432	433	433	435	437	443	447	447	447	446	442	438	435

\* Ten least disturbed days.

† Five international quiet days.

## HOURLY VALUES OF HORIZONTAL INTENSITY.

NOVEMBER, 1918.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.		
443	434	437	440	439	443	443	444	446	439	9 41	452	1 23	424	28	1
443	443	443	443	440	436	436	436	436	441	8 08	452	12 35	431	21	2
448	447	448	450	451	450	449	451	448	447	9 44	454	2 18	435	19	3
468	459	447	434	428	438	445	448	448	457	11 35	476	19 10	427	49	4
461	457	455	451	455	456	455	455	455	463	11 05	489	1 19	448	41	5
456	453	452	455	457	459	460	461	461	463	9 41	478	17 14	451	27	6
455	453	453	453	457	458	457	456	455	462	7 55	476	16 34	453	23	7
453	451	452	451	449	449	450	452	452	460	9 34	478	19 27	449	29	8
454	452	447	444	446	449	451	454	454	460	11 13	484	18 13	442	42	9
432	420	410	406	406	416	405	410	420	446	7 42	480	21 26	398	82	10
379	392	389	380	391	405	403	419	414	422	9 00	465	15 27	370	95	11
384	381	396	410	419	425	423	421	430	418	5 52	452	16 30	379	73	12
397	409	404	412	420	427	437	437	431	429	11 30	459	15 53	392	67	13
411	406	409	417	423	419	422	422	432	436	8 54	467	15 05	404	63	14
393	403	414	410	409	412	421	416	414	425	9 05	452	15 36	389	63	15
417	405	409	417	420	431	430	424	422	430	8 06	462	17 00	399	63	16
410	419	428	433	433	433	430	432	429	429	7 43	451	14 49	405	46	17
422	424	429	437	442	439	433	431	433	439	8 00	458	16 00	420	38	18
408	419	412	423	431	431	431	435	437	438	8 37	462	15 34	402	60	19
462	460	459	457	457	453	447	448	458	458	13 21	477	0 30	432	45	20
437	437	440	440	441	442	441	440	440	447	6 54	463	15 48	434	29	21
452	446	433	422	421	416	407	398	395	422	5 05	466	23 17	393	73	22
376	377	378	392	401	401	400	400	401	395	5 08	428	1 24	371	57	23
385	398	409	413	407	407	410	416	415	415	10 56	443	15 31	378	65	24
431	429	426	427	431	431	431	431	434	430	10 23	442	1 11	412	30	25
437	437	438	437	433	435	438	436	441	440	9 00	454	0 55	432	22	26
441	441	442	444	446	448	450	448	445	443	9 06	454	2 24	432	22	27
445	445	442	432	434	447	451	448	444	444	7 56	454	18 55	425	29	28
410	391	398	371	354	339	357	391	395	437	12 26	511	20 55	335	176	29
405	400	397	407	412	413	410	411	412	409	8 18	429	17 42	393	36	30
427	426	427	427	428	430	431	432	433	439					50	
449	448	447	446	447	449	450	450	449	452					28	
450	448	448	448	{441}	{444}	446	446	448	453						

DECEMBER, 1918.

27500<sub>r</sub> PLUS TABULAR QUANTITIES.

364	359	342	352	358	373	396	406	408	401	8 02	459	17 06	333	126	1
425	426	428	434	437	438	437	434	430	430	8 00	441	0 00	406	35	2
420	410	402	412	415	420	424	425	426	426	7 54	464	18 06	393	71	3
428	429	423	423	430	433	434	435	433	435	9 30	458	0 26	422	36	4
449	456	454	452	452	452	452	451	453	450	9 16	467	0 16	432	35	5
451	451	454	456	458	458	457	457	457	458	8 28	472	15 34	449	23	6
427	409	383	363	351	344	332	321	346	432	10 16	494	22 28	315	179	7
352	364	363	361	380	380	384	392	382	386	8 42	444	13 42	334	110	8
385	378	380	392	399	419	410	409	406	399	7 10	430	0 00	373	57	9
405	403	402	402	409	421	416	413	413	419	7 00	446	16 18	398	48	10
389	392	399	401	415	423	421	426	427	418	8 35	443	15 45	380	63	11
434	428	425	425	421	422	429	445	432	432	8 00	448	19 52	418	30	12
424	407	405	415	419	431	434	436	433	429	8 03	454	17 19	400	54	13
427	417	419	420	425	425	433	437	433	431	5 28	444	17 02	416	28	14
431	430	433	435	438	440	436	432	432	439	8 00	455	1 56	430	25	15
418	413	413	419	430	434	434	432	427	434	8 43	455	16 11	410	45	16
447	444	439	432	438	438	435	435	438	443	9 00	459	0 06	429	30	17
447	446	437	434	427	415	408	408	406	445	12 36	472	22 02	403	69	18
404	407	420	426	416	420	418	417	430	424	8 45	453	14 33	396	57	19
415	407	416	404	396	397	408	410	410	426	10 34	461	18 55	390	71	20
421	426	422	424	425	427	421	426	426	426	10 24	449	1 04	409	40	21
446	432	428	429	420	421	414	402	412	438	13 02	472	22 31	396	76	22
410	410	413	414	421	423	428	431	434	426	10 09	447	15 51	406	41	23
436	437	440	436	436	439	439	437	439	442	11 34	467	0 33	431	36	24
274	287	274	302	330	352	362	349	352	379	10 04	475	17 32	264	211	25
416	379	351	360	366	369	372	377	379	389	12 20	450	17 12	345	105	26
396	406	407	406	410	412	415	416	417	402	11 34	417	0 00	381	36	27
409	411	416	417	420	420	421	421	423	419	11 24	429	16 00	407	22	28
415	414	422	428	427	427	431	433	436	428	12 00	440	16 08	412	28	29
433	433	437	437	437	442	441	442	444	438	8 36	447	16 15	430	17	30
411	417	426	430	433	432	430	430	434	434	7 00	450	15 31	407	43	31
413	411	409	411	414	417	418	419	420	425					60	
425	422	425	428	432	434	435	436	435	434					32	
431	433	437	438	{428}	{429}	430	431	432	437						

## PORTO RICO MAGNETIC OBSERVATORY.

JANUARY, 1917.

34500<sub>r</sub> PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	203	203	203	203	200	198	197	196	184	178	178	178	179	182	178
2*	201	198	202	202	201	201	201	200	196	191	187	192	187	190	191
3*†	195	196	195	200	199	199	196	195	185	177	176	181	182	177	184
4	194	202	200	201	196	194	197	189	185	177	166	178	173	173	183
5	194	201	202	203	206	206	204	204	181	175	169	167	168	166	174
6	193	195	198	198	200	201	203	199	191	186	179	178	178	180	175
7	188	190	191	193	194	197	197	194	186	182	183	178	178	179	178
8	187	193	197	196	197	200	201	196	190	186	186	187	187	194	188
9	195	195	195	195	197	199	195	197	191	184	184	184	186	187	191
10	198	194	195	(196)	(198)	(200)	(202)	(203)	200	194	187	191	195	193	193
11	200	201	202	201	200	202	202	203	197	197	194	190	182	184	193
12	195	197	194	199	198	200	200	201	192	191	188	191	190	183	177
13	204	201	197	196	193	(194)	(194)	191	183	177	179	173	173	174	182
14*	193	194	190	195	190	190	191	191	190	188	187	182	181	190	192
15*†	193	194	193	192	190	189	189	190	189	171	167	172	172	174	177
16	192	191	191	190	189	189	188	190	190	184	182	186	187	187	193
17*	199	198	198	195	195	195	194	194	188	179	178	177	177	183	183
18*†	197	199	202	198	199	197	197	197	193	187	178	178	178	184	188
19	195	196	196	197	197	195	193	195	188	181	173	177	179	184	186
20	195	197	197	198	196	194	191	192	187	177	168	176	178	180	177
21	191	194	196	197	196	196	196	196	188	182	179	179	176	191	193
22	193	194	197	202	198	201	203	204	194	178	177	179	179	185	191
23	196	195	195	197	200	200	200	195	186	176	177	183	186	188	186
24	192	195	195	196	197	198	199	202	193	186	178	177	187	189	191
25	190	193	196	191	193	195	195	197	192	185	176	167	166	176	178
26	192	197	192	194	195	194	194	195	192	188	185	191	190	190	189
27*	196	194	193	192	191	192	193	196	192	178	167	172	170	177	181
28*†	196	195	194	194	193	191	190	191	185	176	171	176	176	182	186
29*†	193	193	192	194	194	193	190	190	182	170	164	167	168	172	176
30*	194	194	196	196	195	195	193	194	185	176	176	177	176	179	182
31	197	198	199	199	197	197	197	196	192	186	177	181	188	187	186
Mean.....	195	196	196	197	196	197	196	196	189	182	178	180	180	183	185
Mean*....	196	196	196	196	195	194	193	194	188	179	175	177	177	181	184
Mean†....	195	195	195	196	195	194	192	193	187	176	171	175	175	178	182

FEBRUARY, 1917.

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1*†	198	202	200	200	199	198	197	197	(188)	(180)	179	187	194	189	188
2	198	196	199	201	202	197	194	192	186	173	167	163	163	172	175
3*	194	195	197	200	199	199	199	198	187	176	168	164	169	173	175
4*	193	194	197	198	198	198	197	199	193	188	181	173	174	170	183
5*	192	193	194	199	201	201	199	201	192	185	177	173	173	179	184
6	200	200	201	203	203	204	204	206	200	194	192	190	183	184	184
7	199	200	202	203	202	202	204	203	194	183	175	175	178	183	183
8	200	199	200	202	201	202	202	203	201	192	191	191	189	185	187
9*†	196	196	196	197	198	196	197	198	193	190	183	182	182	184	186
10*	190	192	195	197	195	194	195	197	192	186	178	184	184	183	183
11	198	198	203	197	196	196	198	201	193	185	184	182	180	180	179
12*†	200	199	200	201	199	199	200	202	194	188	185	184	183	184	184
13*†	200	199	203	201	200	(200)	(202)	(201)	193	189	186	185	180	178	181
14	198	201	200	198	196	196	196	198	197	195	192	191	190	189	189
15	210	210	208	208	205	205	205	208	206	199	196	200	196	191	183
16	193	193	201	210	207	202	201	202	199	194	192	193	187	186	189
17	189	191	193	194	191	190	191	193	189	186	182	178	178	179	180
18	187	197	198	203	199	203	199	197	196	188	181	183	184	188	190
19	193	192	197	203	203	203	201	201	194	193	187	183	183	186	187
20	193	193	204	210	203	206	208	196	194	185	177	176	176	183	182
21	195	196	198	200	200	201	198	198	188	178	173	168	169	173	172
22	190	192	191	196	194	198	199	195	192	184	182	179	175	174	175
23	192	193	192	191	191	193	196	197	195	187	176	171	170	167	169
24	196	194	193	197	196	197	200	202	202	200	192	184	183	186	189
25*	197	196	195	196	196	194	196	197	196	194	190	186	185	183	183
26	196	196	195	198	193	193	195	200	203	204	199	192	184	183	181
27*†	197	196	196	195	195	195	196	197	197	196	195	194	189	188	191
28	201	201	200	195	195	195	196	194	196	195	195	195	193	193	192
Mean.....	196	197	198	200	198	198	199	199	195	189	184	182	181	182	183
Mean*....	196	196	197	198	198	197	198	198	199	192	187	182	181	181	184
Mean†....	198	198	199	199	198	198	198	198	199	193	189	186	186	185	186

\* Ten least disturbed days.

† Five international quiet days.

## HOURLY VALUES OF VERTICAL INTENSITY.

77

JANUARY, 1917.

34500<sub>r</sub> PLUS TABULAR QUANTITIES.

15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.		
182	186	187	187	192	195	197	197	200	191	h 1 m 56	206	10 00	177	29	
186	184	186	188	190	190	191	194	196	194	2 25	205	16 00	180	25	
189	190	190	192	193	189	187	186	191	189	4 55	201	10 18	173	28	
191	195	195	194	195	191	204	211	205	191	23 07	223	10 22	161	62	
180	190	191	193	196	194	194	191	193	189	5 32	211	10 30	165	46	
187	184	186	188	186	189	190	190	190	189	6 47	204	13 28	171	33	
180	186	188	189	193	188	189	188	189	188	5 39	198	14 48	177	21	
192	192	186	191	199	197	199	199	198	193	6 06	206	14 34	183	23	
197	199	193	195	198	195	194	199	197	193	5 37	203	10 17	182	21	
185	194	196	202	201	202	204	204	204	197	21 14	206	15 28	182	24	
185	191	195	194	197	202	202	203	202	197	22 12	204	13 01	176	28	
187	191	196	199	199	195	194	192	202	194	6 02	203	14 11	172	31	
183	183	188	191	193	197	197	195	195	189	0 57	207	12 06	171	36	
196	193	(194)	(195)	(195)	(194)	(194)	(193)	193	194	191	3 47	198	12 30	181	17
185	188	188	189	190	191	192	193	186	186	1 50	196	10 10	166	30	
190	189	190	191	191	190	188	187	197	189	24 00	200	10 01	180	20	
182	179	188	190	189	190	194	199	189	189	0 30	201	11 12	173	28	
193	192	194	195	195	192	192	193	195	192	2 11	205	11 09	174	31	
187	191	185	188	188	189	190	187	193	189	24 00	199	11 08	173	26	
185	187	190	191	190	187	190	190	190	188	2 01	199	10 28	165	34	
190	190	187	189	196	194	194	190	190	190	14 13	197	12 42	174	23	
193	195	196	197	196	197	198	195	193	193	6 20	206	9 54	173	33	
192	195	194	191	197	197	198	193	194	192	4 54	202	9 55	169	33	
190	194	196	198	200	196	195	194	200	193	23 13	204	11 00	177	27	
182	188	191	196	200	198	196	191	195	189	2 09	201	12 12	159	42	
188	189	192	193	196	195	196	196	198	193	4 08	202	10 34	185	17	
185	186	188	192	195	196	196	197	198	188	22 34	198	10 30	163	35	
188	185	188	191	193	190	191	191	193	188	0 00	196	10 20	166	30	
182	183	183	185	185	187	190	192	194	184	0 33	195	10 30	159	36	
188	193	194	194	194	193	194	196	198	190	22 37	199	10 35	173	26	
(189)	191	193	195	196	194	196	200	199	193	2 00	205	10 35	176	29	
187	189	191	192	194	193	194	194	196	191					30	
187	187	189	191	192	191	192	193	195	189					29	
187	188	189	190	{193 {191 190}	192	194	196	196	188						

FEBRUARY, 1917.

34500<sub>r</sub> PLUS TABULAR QUANTITIES.

(184)	(180)	184	197	200	192	191	191	192	192	1 05	202	10 24	177	25
183	185	187	187	189	191	192	192	192	186	3 10	203	12 25	151	52
183	187	191	192	192	192	191	192	192	188	4 20	200	11 30	163	37
193	195	198	198	197	193	190	192	194	191	7 50	201	13 25	167	34
192	192	198	202	204	202	202	201	200	193	19 23	204	12 41	169	35
192	192	198	198	202	197	195	196	197	197	5 12	208	14 05	183	25
190	193	194	185	206	193	192	196	201	193	6 20	208	11 12	172	36
190	191	194	202	204	203	202	201	199	197	19 30	205	14 08	184	21
193	192	194	195	197	193	197	196	193	193	21 30	200	11 55	181	19
192	195	195	198	201	200	198	197	198	192	21 00	202	11 20	176	26
184	186	190	194	199	197	200	202	202	193	2 30	204	12 00	176	28
185	190	192	195	199	197	201	202	202	194	7 40	202	10 55	181	21
185	188	190	191	194	195	196	197	199	193	2 35	204	13 50	176	28
189	194	194	195	197	197	198	199	207	196	24 00	210	14 05	188	22
195	179	181	182	183	192	190	202	194	197	0 20	211	16 15	171	40
194	192	193	192	194	190	185	185	187	194	4 00	212	22 30	185	27
182	181	187	188	190	186	181	181	180	186	3 05	194	16 08	173	21
196	200	202	200	196	195	192	193	192	194	5 30	207	10 40	180	27
190	196	195	196	200	199	204	197	197	195	5 27	209	11 55	182	27
186	197	199	197	199	197	195	195	194	194	6 14	214	11 48	170	44
180	192	195	195	198	199	196	192	190	189	5 07	205	11 54	167	38
174	180	189	184	192	200	198	194	192	188	20 30	201	15 05	170	31
171	181	183	186	191	196	197	195	198	187	7 00	201	12 51	165	36
191	193	194	197	199	200	199	198	195	195	7 01	203	12 00	183	20
182	183	183	191	197	200	202	203	202	193	21 13	204	16 00	180	24
181	183	186	191	194	197	196	197	197	193	8 00	205	15 00	181	24
189	188	190	191	195	195	195	199	200	194	23 25	203	14 00	185	18
(190)	189	190	192	195	195	196	198	198	195	7 55	201	16 48	186	15
187	189	192	193	197	196	196	196	196	193					29
188	189	192	195	198	196	196	197	197	192					27
187	188	190	194	{198 {197 194}	199	200	200	200	194					

## PORTO RICO MAGNETIC OBSERVATORY.

MARCH, 1917.

34500 $\gamma$  PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	198	198	197	199	197	196	195	194	188	182	181	182	180	183	184
2*†	198	197	196	197	196	196	196	196	197	197	195	188	184	184	187
3*†	196	196	196	198	196	196	195	194	188	184	184	187	186	186	184
4	195	196	195	196	196	195	194	194	192	181	178	180	176	184	188
5	191	194	196	193	195	203	200	199	193	185	189	195	193	184	180
6	199	200	200	201	202	200	202	201	196	192	190	196	196	192	192
7	196	197	198	201	201	201	199	199	197	193	192	192	191	191	192
8	196	199	199	204	195	201	199	197	191	186	181	185	181	181	183
9	198	201	204	200	201	201	201	200	195	194	192	190	187	187	188
10*	194	196	198	199	199	200	200	198	192	188	184	184	183	183	179
11	198	200	200	197	202	201	201	193	190	190	192	187	187	185	185
12	194	192	191	191	194	194	195	196	193	191	186	179	178	179	183
13	197	196	196	198	196	199	209	205	166	196	185	173	168	171	176
14*	199	202	202	203	198	199	200	200	197	194	192	192	187	187	187
15	202	201	201	201	201	198	200	200	199	197	192	183	183	183	183
16*	201	201	201	201	200	200	199	195	188	184	183	182	180	181	181
17	202	202	202	202	201	199	196	194	192	192	192	193	191	191	192
18	209	206	204	209	204	202	200	197	193	190	188	193	191	193	190
19*	204	204	204	204	205	204	199	198	194	194	192	194	195	195	196
20	205	205	208	210	208	207	207	203	195	191	185	185	186	186	188
21	199	202	205	207	208	209	208	204	197	193	193	195	196	196	198
22	205	206	207	208	210	213	209	205	194	187	183	181	180	181	184
23	202	202	203	208	208	208	210	206	197	191	184	187	189	193	196
24	202	202	204	207	209	207	209	204	196	189	187	189	190	193	200
25	202	205	201	204	209	208	209	202	189	172	162	162	165	180	188
26	208	207	207	204	202	202	203	201	195	191	190	186	183	182	184
27	198	198	197	197	196	196	196	195	191	184	178	172	172	177	186
28*†	199	199	199	199	196	195	193	192	189	184	183	176	178	178	183
29*†	196	197	197	197	196	196	196	193	191	193	194	197	192	192	192
30*†	198	200	200	201	199	197	197	196	193	194	196	197	193	196	202
31*†	199	200	201	202	201	200	199	196	188	185	179	182	185	187	189
Mean...	199	200	200	201	201	201	200	198	192	189	187	186	185	186	188
Mean*...	198	199	199	200	199	198	197	196	192	190	188	189	186	187	188
Mean†...	197	198	198	198	197	196	195	194	192	190	190	190	186	187	190

APRIL, 1917.

34500 $\gamma$  PLUS TABULAR QUANTITIES.

1	196	195	195	197	198	196	194	190	182	181	181	182	182	186	189
2	190	193	195	197	199	199	197	195	190	186	185	189	191	196	199
3	196	201	208	207	203	200	200	196	190	192	197	202	199	199	200
4	199	201	206	212	207	207	206	199	194	194	191	191	194	200	201
5	200	202	205	210	209	206	202	202	201	199	191	191	184	194	199
6	201	208	202	213	214	215	213	203	200	197	195	196	193	197	203
7	204	203	204	205	205	206	207	206	194	194	197	196	194	196	199
8	204	205	202	207	206	207	207	204	200	199	199	199	199	203	203
9	199	198	197	200	206	210	205	205	199	195	192	196	196	198	204
10†	199	199	199	200	199	202	202	202	199	198	197	194	190	191	195
11*†	198	197	195	196	197	197	198	198	199	201	199	199	200	200	199
12*†	198	196	196	194	195	196	196	195	194	194	194	195	194	198	197
13*†	202	201	201	200	194	194	197	198	194	194	197	199	200	191	193
14*†	203	202	202	201	200	199	200	201	201	203	203	202	201	201	199
15	199	197	199	197	193	194	198	201	197	202	203	208	206	209	212
16	194	202	209	208	204	203	201	198	202	204	200	208	208	212	213
17	213	205	205	210	209	208	206	204	205	205	205	209	208	208	206
18*	202	207	206	209	210	211	207	202	196	193	189	195	195	202	205
19*	202	203	205	206	206	205	204	197	192	191	189	188	193	199	202
20*†	200	202	203	206	207	208	208	206	203	202	203	205	205	208	212
21	203	204	206	208	212	211	211	201	190	181	180	180	185	191	198
22	197	195	195	201	206	206	207	206	203	204	204	204	203	204	205
23	206	205	207	207	209	208	210	205	201	196	192	191	192	198	201
24*	207	207	206	206	208	209	210	211	210	210	206	201	198	200	202
25	208	208	208	209	210	212	208	200	200	199	197	189	189	190	193
26	201	199	198	198	197	200	207	211	200	209	207	208	208	204	199
27*†	206	206	207	204	203	204	205	204	201	200	194	192	192	192	194
28*†	206	205	206	206	205	203	203	202	200	202	203	205	205	209	211
29	208	203	205	211	208	209	207	207	210	210	207	208	213	217	218
30	207	209	216	217	206	209	209	208	212	207	207	203	209	213	(212)
Mean...	202	202	203	205	204	204	204	202	202	198	197	198	197	200	202
Mean*...	202	203	203	203	202	202	203	201	199	199	198	198	198	200	201
Mean†...	201	201	201	201	201	202	203	202	201	199	199	198	198	198	200

\*Ten least disturbed days.

†Five international quiet days.

MARCH, 1917.

34500<sub>r</sub> PLUS TABULAR QUANTITIES.

15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.		
187	192	193	193	196	197	197	199	199	192	3 30	200	12 30	178	22 1	
188	188	188	189	193	195	195	198	198	193	8 15	200	13 10	183	17 2	
182	181	184	188	189	189	189	194	196	190	4 00	198	15 30	178	20 3	
191	187	185	188	194	194	194	196	195	190	5 00	198	10 50	175	23 4	
193	195	198	199	203	202	202	201	200	195	5 15	207	14 27	172	35 5	
192	194	194	199	201	200	197	196	198	197	3 11	205	10 30	186	19 6	
192	191	192	195	200	200	198	193	193	196	5 30	203	11 42	188	15 7	
190	190	198	200	200	199	198	196	198	194	3 44	209	10 36	176	33 8	
188	188	192	195	200	200	199	197	197	196	2 15	207	12 30	187	20 9	
183	184	185	190	195	195	196	196	194	191	5 53	202	14 37	177	25 10	
188	183	185	191	194	194	194	195	195	193	5 21	203	16 50	182	21 11	
185	185	190	194	195	197	198	200	200	191	23 26	203	11 48	175	28 12	
186	191	194	198	203	203	201	198	198	192	6 37	215	12 30	165	50 13	
186	188	186	191	195	200	201	202	202	195	1 30	204	17 39	182	22 14	
187	189	189	190	192	198	199	200	201	195	5 22	206	12 49	181	25 15	
182	189	193	193	193	193	195	197	200	192	0 33	202	12 52	177	25 16	
193	192	193	196	196	194	194	201	204	196	24 00	207	13 08	188	19 17	
191	191	193	194	195	199	200	200	201	197	0 41	212	16 00	187	25 18	
195	200	200	200	198	198	200	203	204	199	4 20	206	10 25	191	15 19	
194	196	197	194	200	196	195	202	199	198	3 46	210	11 30	183	27 20	
204	205	206	206	206	205	204	204	204	202	6 00	212	9 55	191	21 21	
186	187	190	198	202	205	204	204	202	202	5 20	214	12 00	180	34 22	
199	198	200	205	208	208	206	203	201	200	6 25	215	10 38	180	35 23	
200	202	199	201	208	209	208	207	207	201	6 38	212	10 43	186	26 24	
191	192	193	199	207	209	210	210	209	195	4 32	211	11 20	159	52 25	
182	181	182	190	195	197	197	198	199	194	6 39	209	12 20	181	28 26	
189	188	188	191	197	199	198	198	200	191	0 46	200	11 50	168	32 27	
187	185	186	188	193	193	195	195	197	190	0 32	200	12 43	176	24 28	
193	187	185	186	190	194	195	197	197	193	0 55	198	17 30	185	13 29	
204	199	196	196	197	196	197	197	198	197	15 30	204	8 15	192	12 30	
186	178	178	179	182	183	182	183	191	189	6 26	205	10 50	177	28 31	
190	190	191	194	197	198	198	199	199	195					26	
189	188	188	190	192	194	194	196	198	193					20	
191	188	188	189	{194}	{196}	{192}	{193}	196	197	198	193				

APRIL, 1917.

34500<sub>r</sub> PLUS TABULAR QUANTITIES.

191	192	187	184	190	191	189	187	197	190	23 25	200	11 45	180	20 1
198	197	197	197	199	198	199	198	197	195	5 00	201	9 42	183	18 2
206	207	205	202	205	202	200	199	199	201	15 38	210	9 13	189	21 3
202	203	204	205	206	201	200	201	201	201	3 45	217	10 56	190	27 4
203	206	207	204	207	202	203	209	212	202	23 26	219	12 11	182	37 5
205	205	200	204	207	204	203	203	203	204	1 14	223	12 12	192	31 6
199	202	202	201	204	207	204	206	202	202	22 15	213	8 57	193	20 7
204	197	205	206	205	199	205	198	200	203	21 23	219	7 37	197	22 8
206	201	203	206	209	205	205	203	202	202	5 06	226	9 36	187	39 9
198	195	195	197	200	200	200	198	197	198	6 30	204	12 18	190	14 10
201	193	189	191	197	198	198	198	198	197	9 30	202	17 25	188	14 11
198	191	189	191	195	194	195	200	203	195	23 14	203	7 20	189	14 12
194	191	193	195	200	199	200	201	203	197	0 11	205	15 58	191	14 13
197	191	191	191	192	193	194	196	199	198	10 25	204	18 00	191	13 14
212	207	202	198	199	199	194	198	200	201	14 51	214	21 30	192	22 15
211	205	204	199	200	203	204	203	205	204	14 15	216	7 44	192	24 16
210	204	202	201	201	197	198	204	204	205	0 30	219	20 20	194	25 17
206	200	198	198	202	205	202	201	201	202	5 39	211	10 25	189	22 18
(204)	(203)	(203)	204	205	203	201	200	201	200	3 25	208	11 30	187	21 19
212	(207)	202	201	201	200	203	202	203	204	16 00	216	24 00	200	20 20
204	202	200	202	205	204	202	201	199	199	6 05	214	10 17	180	34 21
205	201	203	203	202	207	205	206	207	203	7 45	210	2 20	194	16 22
204	202	201	200	206	210	210	208	204	203	4 43	210	12 05	190	20 23
201	201	202	206	208	209	208	208	206	206	7 16	213	12 20	197	16 24
193	194	192	200	205	207	208	207	207	202	6 38	214	17 25	187	27 25
203	199	203	206	207	209	207	207	207	204	7 33	223	2 54	193	30 26
198	199	199	201	203	204	206	206	201	201	2 33	208	12 08	189	19 27
210	209	208	206	207	205	204	206	209	206	23 12	213	8 15	197	16 28
216	209	212	214	213	212	212	211	211	210	14 10	221	1 15	202	19 29
210	209	208	209	210	209	207	207	208	209	3 15	220	10 45	200	20 30
200	201	200	201	203	202	202	202	203	201					22
202	198	197	198	201	201	201	202	203	201					16
201	197	195	196	{194}	{196}	{199}	203	202	202					

MAY, 1917.

34500 $\gamma$  PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	211	209	212	215	211	211	206	202	200	204	204	203	197	199	207
2	203	202	212	212	206	203	203	206	196	199	198	201	206	215	221
3	206	212	213	215	214	213	208	205	200	194	199	207	212	217	215
4	199	206	208	210	208	209	208	267	208	208	208	211	211	211	215
5	210	212	218	215	213	215	210	210	210	211	212	210	212	216	218
6*†	208	208	209	212	212	212	210	210	207	207	208	207	208	208	208
7*	204	208	210	209	214	214	211	206	205	205	205	204	202	202	205
8*†	209	209	210	210	212	212	212	210	209	208	209	208	207	209	212
9*	209	209	208	210	210	210	208	201	200	201	203	199	199	198	199
10	211	208	207	207	208	211	210	208	206	205	205	205	204	208	209
11*	206	205	205	206	206	206	207	206	207	209	212	210	206	207	210
12	205	203	202	202	201	202	204	206	204	206	207	210	214	217	212
13†	208	207	202	203	205	207	206	207	208	209	209	208	205	204	203
14	212	212	209	210	209	209	209	212	212	209	209	212	211	214	219
15	214	214	214	215	213	213	212	211	208	208	206	208	203	206	210
16	212	216	222	204	209	215	213	205	213	215	221	223	229	229	227
17	212	211	215	216	211	212	208	211	212	208	207	208	209	207	206
18	209	210	211	213	212	211	212	209	210	211	216	219	217	218	214
19*†	208	209	212	215	215	217	215	214	218	219	216	219	220	219	221
20*†	209	209	212	214	214	216	214	213	217	220	221	217	212	213	214
21	208	208	210	213	215	217	218	218	218	220	220	222	222	216	217
22	207	207	209	211	211	212	215	215	210	208	212	208	206	201	205
23*	209	209	208	210	213	213	211	207	197	195	198	202	203	203	207
24*	211	210	211	211	213	212	211	209	207	206	206	203	201	205	210
25	210	207	208	210	(211)	(211)	(210)	(208)	205	207	212	214	214	215	220
26	214	213	212	216	214	212	211	210	204	210	216	215	209	208	213
27	212	208	212	212	209	209	216	217	211	212	214	212	213	216	220
28	219	217	208	211	216	219	(215)	(209)	203	207	205	208	210	213	218
29	216	218	217	216	216	213	210	205	208	212	215	215	214	212	215
30	219	219	214	216	216	214	210	209	208	(209)	(210)	(210)	(211)	(212)	(214)
31*	217	213	214	215	213	211	211	208	205	207	210	215	215	215	215
Mean...	210	210	211	211	211	212	210	209	207	208	209	210	210	211	213
Mean*...	209	209	210	211	212	212	211	208	207	208	209	208	207	208	210
Mean†...	208	208	209	211	212	213	211	211	212	213	213	212	210	211	212

JUNE, 1917.

34500 $\gamma$  PLUS TABULAR QUANTITIES.

1*†	216	(217)	(218)	(218)	219	219	218	211	209	208	203	200	198	199	203
2*†	213	215	217	218	217	217	214	212	210	214	221	226	223	223	225
3	212	212	213	216	217	216	216	214	211	212	215	217	217	219	216
4	215	218	223	223	218	220	217	217	216	214	213	217	215	215	218
5*	213	214	215	218	218	221	221	221	221	215	215	220	220	224	227
6	217	214	215	217	218	220	221	217	211	210	203	199	200	208	217
7	213	213	215	215	215	218	221	222	220	222	217	221	229	229	232
8	219	218	222	224	230	229	225	224	219	219	224	224	223	224	225
9	220	218	220	218	217	219	216	214	211	212	212	212	214	215	217
10	222	217	213	213	210	213	215	214	213	207	208	211	220	220	216
11	218	218	221	220	219	220	218	216	212	210	211	214	220	225	223
12	217	218	217	217	215	214	214	209	209	215	218	217	214	211	211
13	221	213	212	213	214	212	209	209	213	208	212	208	208	215	218
14	218	221	220	220	215	219	218	211	209	209	209	210	215	220	223
15	221	224	224	228	228	226	221	219	215	211	210	208	207	213	222
16	217	218	222	224	227	228	226	220	213	211	208	205	201	205	211
17*	217	216	217	221	221	222	219	212	211	210	207	207	209	211	217
18*	211	212	213	216	219	220	221	223	224	228	228	225	222	223	228
19*†	213	212	214	217	219	221	219	217	212	208	209	207	211	215	217
20*†	215	214	216	218	218	219	218	214	210	213	218	221	219	218	222
21*	214	213	214	215	216	219	220	219	219	219	216	218	210	210	211
22	217	215	216	216	219	217	216	211	216	221	221	220	216	216	216
23	214	213	214	216	214	224	223	220	220	216	211	207	215	222	228
24	215	214	216	220	225	223	218	219	224	222	209	203	225	244	226
25	233	234	235	228	226	226	226	227	223	221	216	219	224	226	226
26*	226	228	226	223	221	221	222	220	219	217	216	217	219	223	226
27	225	222	224	223	222	221	220	220	216	212	212	216	221	224	225
28	220	220	221	226	228	227	226	226	220	215	212	211	220	223	224
29	220	223	223	226	227	226	224	220	212	211	213	215	218	220	227
30*†	234	235	236	235	234	233	230	227	220	215	209	204	204	209	214
Mean...	218	218	219	220	220	221	220	217	215	214	213	213	215	218	220
Mean*...	217	218	219	220	220	221	220	218	215	215	214	214	214	216	219
Mean†...	218	219	220	221	221	222	220	216	212	212	212	212	211	213	216

\*Ten least disturbed days.

†Five international quiet days.

## HOURLY VALUES OF VERTICAL INTENSITY.

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MAY, 1917.

34500<sub>r</sub> PLUS TABULAR QUANTITIES.

15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.				
206	201	201	199	201	202	202	203	198	204	h 2	m 52	216	7 58	194	22	1	
218	213	212	210	212	209	204	202	199	207	14 30	48	225	8 30	195	30	2	
217	213	213	208	207	209	208	208	205	209	15 45	45	219	9 32	191	28	3	
214	213	213	214	213	211	208	204	204	209	14 2	41	217	0 25	198	19	4	
218	214	211	216	217	216	213	211	210	213	2	26	221	0 00	205	16	5	
209	208	209	212	212	211	208	201	201	209	5 20	39	213	22 31	199	14	6	
205	209	209	211	215	215	215	212	210	209	4 23	30	217	13 30	202	15	7	
213	210	210	212	215	214	214	213	210	211	14 23	08	215	11 02	216	9	8	
207	207	207	208	211	216	215	214	213	207	20 20	20	217	11 40	196	21	9	
208	207	209	209	208	210	209	208	210	208	20 34	34	213	12 16	203	10	10	
206	201	202	203	205	207	208	207	207	206	10 23	41	214	16 10	201	13	11	
203	200	201	202	201	205	209	207	209	206	13 23	44	218	16 28	198	20	12	
205	202	201	202	206	206	207	209	211	206	23 23	45	213	17 06	201	12	13	
221	217	211	207	212	209	207	210	212	211	15 20	56	227	18 08	207	20	14	
210	213	211	208	208	205	208	208	210	210	3 33	33	216	12 25	203	13	15	
223	219	215	215	214	210	209	208	209	216	13 21	14	231	7 32	201	30	16	
207	208	205	205	204	205	206	207	207	209	3 21	21	218	18 20	203	15	17	
211	209	211	211	212	211	207	207	208	212	13 20	14	231	21 55	206	25	18	
223	220	218	218	217	212	210	208	208	215	15 20	20	225	0 12	207	18	19	
219	213	215	218	217	214	212	211	211	214	10 16	16	224	0 00	209	15	20	
217	213	215	216	215	214	212	210	215	215	12 42	35	226	0 46	206	20	21	
203	207	209	210	213	215	213	211	211	210	20 18	18	219	13 45	197	22	22	
209	205	207	211	215	213	214	215	215	208	22 30	30	215	9 07	192	23	23	
212	208	209	211	213	211	213	214	213	210	4 42	42	215	12 23	201	14	24	
215	204	210	211	215	214	213	212	215	211	15 12	12	226	9 00	203	23	25	
214	214	215	213	217	217	216	214	215	213	10 42	42	218	8 05	198	20	26	
220	219	217	213	218	215	214	212	212	214	17 08	16	221	1 21	206	15	27	
220	215	216	215	216	214	212	213	223	213	5 08	228	8 33	199	29	28		
211	210	212	212	213	215	215	217	219	214	2 05	05	224	7 14	201	23	29	
(216)	217	215	215	215	212	211	212	214	213	1 00	0	219	8 00	208	11	30	
215	217	218	219	219	217	218	216	217	214	0 41	41	220	7 14	201	19	31	
213	211	211	211	212	212	211	210	210	210						19		
212	210	210	212	214	213	213	211	210	210						16		
214	211	211	212	{212	{212	{212	{211	{211	211	209	209	211					

JUNE, 1917.

34500<sub>r</sub> PLUS TABULAR QUANTITIES.

209	215	215	215	215	215	213	214	214	212	5 00	00	219	12 30	198	21	1	
224	223	220	220	218	215	214	212	214	218	11 26	25	226	8 25	208	18	2	
218	212	206	207	205	198	204	217	216	213	22 38	38	221	20 18	197	24	3	
219	217	217	218	219	219	218	217	216	217	2 25	25	227	10 25	212	15	4	
235	228	222	222	225	223	221	219	218	220	15 32	32	236	0 05	213	23	5	
219	214	213	214	220	222	221	219	217	214	20 55	55	225	11 15	199	26	6	
329	225	222	215	224	239	234	228	225	223	20 40	40	243	0 08	210	33	7	
224	224	224	225	226	230	231	224	224	224	4 48	48	236	8 40	215	21	8	
218	216	217	217	217	218	217	217	218	216	2 46	46	223	8 13	210	13	9	
217	214	215	216	216	217	220	225	220	216	0 42	42	225	9 38	205	20	10	
219	214	214	215	215	215	215	218	219	217	13 23	23	227	9 23	209	18	11	
214	212	209	208	210	212	213	214	215	213	10 04	04	219	7 33	206	13	12	
213	213	217	217	213	213	218	219	219	214	14 55	55	224	7 06	204	20	13	
226	223	222	220	220	217	217	220	220	218	15 50	50	227	9 50	206	21	14	
230	231	225	221	221	220	219	216	214	219	16 15	15	233	10 53	205	28	15	
212	214	216	216	215	213	211	212	215	215	4 48	48	230	12 45	201	29	16	
223	224	222	219	216	212	210	210	210	216	5 40	40	225	10 07	206	19	17	
227	221	219	219	221	218	217	215	215	220	14 37	37	230	0 00	209	21	18	
220	221	222	220	221	218	217	215	215	216	5 11	11	222	11 12	206	16	19	
229	225	224	222	222	221	219	218	217	219	15 30	30	230	8 00	209	21	20	
216	216	216	216	217	218	218	221	221	216	23 25	25	223	12 45	209	14	21	
214	216	213	211	214	214	214	214	214	214	10 00	00	224	7 30	209	15	22	
227	212	213	216	223	222	225	226	226	218	15 20	20	233	4 30	207	26	23	
228	233	223	224	232	234	230	226	234	224	13 28	28	233	11 09	194	59	24	
226	228	226	227	228	230	229	229	227	227	1 35	35	236	11 00	213	23	25	
228	224	219	218	221	223	225	226	226	222	1 33	33	230	9 20	213	17	26	
231	221	219	220	220	219	218	225	225	221	15 39	39	232	10 15	212	20	27	
224	218	218	220	221	220	216	218	218	220	5 20	20	229	10 07	207	22	28	
227	221	219	222	224	225	226	227	232	222	4 56	56	229	9 55	209	20	29	
216	220	221	220	220	221	222	222	225	222	4 26	26	238	11 30	201	37	30	
222	220	218	218	219	219	219	219	220	218						22		
223	222	220	219	220	219	218	217	218	218						21		
220	221	220	219	{219	{220	{218	{218	{218	217	217	217	219	217				

## PORTO RICO MAGNETIC OBSERVATORY.

JULY, 1917.

34500 $\gamma$  PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	225	227	227	230	229	228	229	227	222	219	220	223	229	230	232
2	223	227	236	229	221	229	233	228	228	230	225	223	222	217	231
3	216	216	214	214	216	219	216	220	227	227	224	220	216	224	227
4	216	218	216	218	221	222	219	218	211	204	198	200	197	298	205
5*	211	212	215	216	218	222	223	222	217	219	227	227	226	226	229
6*†	219	219	219	221	222	227	227	224	215	212	212	213	219	219	217
7	217	220	221	221	221	224	224	217	207	216	217	224	228	228	233
8*	213	216	214	216	219	220	222	225	235	238	238	239	233	228	226
9	221	220	218	219	216	219	221	225	220	219	224	226	231	230	232
10	218	217	217	216	214	214	214	217	222	225	230	237	237	238	231
11	220	221	225	218	213	213	219	216	222	223	222	221	222	223	225
12	223	223	223	223	221	221	220	218	213	219	223	226	223	221	225
13	226	219	227	218	227	222	219	221	208	212	210	218	229	235	235
14	233	240	242	240	234	234	230	223	228	232	234	234	234	237	241
15	229	228	230	232	231	233	232	227	222	219	219	217	220	223	225
16*†	225	225	227	229	231	231	231	228	223	223	223	221	224	225	230
17*†	226	227	227	228	231	228	228	223	220	219	220	217	212	209	
18*†	222	224	223	226	228	230	229	226	227	(222)	218	219	216	213	220
19*	220	220	222	226	225	227	222	217	207	201	191	185	199	206	209
20*†	226	226	227	228	227	227	229	227	220	216	215	209	207	217	217
21	224	223	223	224	225	225	225	222	220	217	216	222	221	222	232
22	239	231	228	229	228	230	234	230	223	222	221	224	234	241	244
23	232	234	229	229	230	231	233	229	226	228	229	237	245	246	243
24*	237	241	235	235	232	234	234	234	235	238	(239)	(238)	(237)	(235)	(233)
25*	234	234	233	233	234	234	235	(235)	235	237	239	238	236	235	237
26	237	238	236	237	234	233	232	227	221	220	222	228	223	223	226
27	235	235	234	234	230	230	230	226	222	223	228	230	229	226	229
28	229	232	233	235	229	230	229	225	214	214	216	220	221	226	229
29	234	236	239	245	245	244	240	222	213	230	226	233	240	240	(239)
30	230	229	230	231	230	230	229	223	220	221	223	227	230	234	236
31	228	230	229	229	230	226	224	221	223	220	219	230	233	237	234
Mean... Mean*... Mean†...	226 224 224	226 224 225	226 226 226	227 228 227	226 226 229	227 228 229	227 228 226	224 226 221	221 222 218	222 222 216	222 221 217	224 222 217	225 226 222	226 226 223	228 226 223

AUGUST, 1917.

34500 $\gamma$  PLUS TABULAR QUANTITIES.

1	241	244	244	251	243	238	233	226	229	231	237	237	238	240	240
2	230	231	233	237	237	235	230	222	219	228	231	234	236	231	233
3*	231	230	230	231	231	231	230	217	208	209	209	213	218	219	225
4*	223	222	225	230	228	230	229	224	215	214	213	213	215	216	218
5*†	225	224	223	224	225	228	227	226	219	214	216	219	223	222	223
6*†	226	224	224	223	223	226	227	226	227	226	226	226	225	217	217
7	228	226	225	225	224	225	225	222	216	215	215	222	232	226	221
8	231	233	233	230	228	229	229	227	222	223	225	217	208	215	223
9	262	215	189	165	207	203	222	233	246	248	252	253	252	255	255
10	251	252	252	258	251	244	239	235	231	230	232	231	237	240	244
11	238	234	239	236	234	234	231	229	226	226	228	230	232	235	237
12*	235	236	236	236	235	235	230	219	215	212	211	211	213	216	218
13	232	232	234	236	236	233	230	226	222	225	225	230	216	230	234
14	230	234	238	239	237	238	234	228	208	190	210	222	230	243	243
15	235	243	238	238	243	245	234	226	226	220	227	234	235	234	239
16	239	238	238	238	238	238	238	235	225	219	224	225	227	230	232
17	229	229	230	233	239	239	233	224	228	229	231	230	227	226	228
18*	233	234	233	236	240	241	241	234	228	229	232	233	238	239	(237)
19†	231	231	231	232	235	237	238	233	229	229	233	236	234	233	232
20	228	227	227	227	229	231	228	228	212	208	219	225	223	223	223
21	219	220	230	225	229	230	225	217	224	217	216	220	219	232	243
22	230	232	233	232	231	232	228	218	216	219	223	226	224	224	222
23	234	233	231	233	230	229	229	228	226	222	221	223	224	224	230
24	230	230	231	230	228	229	227	228	232	233	234	232	230	230	229
25	230	230	229	229	228	227	225	221	221	224	223	225	223	225	228
26	229	234	230	231	228	228	231	230	226	228	226	226	230	236	237
27	234	234	234	234	231	231	233	225	223	224	219	218	220	222	225
28*†	232	231	234	234	234	233	230	222	217	217	216	217	218	223	232
29*†	230	233	232	232	232	232	227	222	219	219	219	218	216	220	224
30*	229	230	231	232	232	231	227	223	221	219	215	219	223	226	230
31*	226	229	232	231	230	230	227	227	219	218	218	217	220	227	231
Mean... Mean*... Mean†...	232 229 229	231 230 230	231 231 231	231 231 231	232 230 231	232 230 231	230 230 231	225 223 221	222 219 218	222 217 217	224 219 217	225 219 217	226 221 221	228 222 222	231 226 226

\* Ten least disturbed days.

† Five international quiet days.

## HOURLY VALUES OF VERTICAL INTENSITY.

JULY, 1917.

34500<sub>r</sub> PLUS TABULAR QUANTITIES.

15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.	
232	231	230	228	227	224	222	223	227	227	14 11	235	9 40	217	18
232	225	215	215	217	215	215	211	211	223	2 50	243	23 56	209	34
226	223	224	225	223	219	216	217	221	221	14 35	231	3 59	205	26
216	213	216	218	220	220	218	216	216	213	19 43	223	10 15	195	28
232	228	226	225	226	228	225	223	222	223	15 12	234	0 30	211	23
222	224	224	224	225	225	225	223	221	221	6 47	229	9 44	210	19
224	221	221	224	225	225	224	221	221	222	14 41	236	8 30	204	32
224	223	223	221	224	225	226	226	224	225	11 46	240	3 00	214	26
226	215	215	216	219	220	221	221	220	221	14 31	233	17 10	213	20
230	229	222	222	221	219	218	218	219	223	13 16	239	6 00	214	25
235	214	213	215	219	221	221	222	223	220	15 20	240	17 00	212	28
229	222	222	221	221	221	221	227	223	222	15 31	230	8 04	212	18
241	244	238	231	229	229	228	229	226	226	16 46	246	8 40	196	50
244	240	238	234	230	229	228	233	234	234	15 25	245	8 15	224	21
228	226	226	226	226	226	226	226	226	226	2 56	234	11 40	214	20
232	228	231	229	229	227	227	227	226	227	15 15	233	11 17	220	13
215	219	220	224	227	227	227	224	220	222	5 46	232	14 20	209	23
227	228	225	224	227	227	223	225	224	224	5 35	231	13 54	209	22
217	219	220	224	226	228	228	228	227	216	4 45	231	11 15	181	50
226	228	226	226	227	226	227	227	227	223	6 30	229	12 00	204	25
234	227	230	225	227	226	228	228	233	225	22 55	236	10 04	215	21
244	238	236	235	240	236	237	239	236	233	14 49	245	10 23	218	27
244	237	234	235	238	237	237	236	235	235	13 15	246	8 45	223	23
(231)	229	229	228	231	229	234	235	235	234	1 30	241	18 30	228	13
236	235	232	231	233	233	234	234	236	235	10 10	244	18 25	229	15
225	225	227	229	232	230	231	232	235	229	1 00	238	9 15	220	18
229	222	225	225	225	220	223	228	230	228	0 50	235	16 30	216	19
226	226	223	225	227	224	227	228	229	226	2 55	235	8 05	213	22
(237)	(234)	231	226	230	230	229	230	229	232	5 05	248	8 03	201	47
233	(239)	228	223	226	229	228	225	225	228	16 38	246	8 45	219	27
236	227	236	239	246	(232)	230	230	234	230	19 10	254	7 30	212	42
230	227	226	226	227	226	226	226	226	226				26	
226	226	226	226	228	228	228	227	226	225				23	
224	225	225	225	{227}	{227}	{227}	227	226	224	224				

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239	240	244	237	238	237	232	231	232	238	3 28	252	7 32	226	26
237	237	236	235	237	233	233	232	232	232	17 25	240	8 00	215	25
228	231	230	231	231	231	230	227	226	225	4 40	233	10 00	208	25
224	224	225	226	228	229	229	229	229	223	20 15	233	10 40	212	21
222	216	216	222	226	229	228	228	228	223	5 25	231	9 40	214	17
221	224	225	225	226	230	230	230	230	225	20 45	231	13 44	214	17
217	215	214	222	226	229	229	229	223	223	12 45	239	17 28	209	30
225	223	223	224	230	232	231	232	232	226	24 00	235	12 40	205	30
254	242	272	250	227	237	253	259	250	237	17 40	326	2 55	142	184
245	247	243	239	238	238	238	236	238	241	3 46	266	8 56	227	39
236	234	235	234	234	235	234	236	233	233	2 33	243	10 33	224	19
219	223	224	225	226	225	229	230	231	225	4 54	238	10 15	208	30
240	243	238	230	237	230	226	231	231	231	14 50	266	12 35	208	13
243	243	238	230	232	231	223	230	239	231	13 52	249	9 20	181	68
246	245	244	244	244	240	239	239	238	238	5 00	249	9 37	217	32
234	229	234	236	236	234	234	233	232	233	5 00	239	9 05	217	22
228	231	236	239	239	235	234	232	232	232	5 47	240	7 22	216	17
235	233	231	235	239	238	233	233	233	235	5 21	242	8 18	226	16
231	227	227	228	234	233	233	232	231	232	6 40	239	17 15	226	13
221	219	223	225	226	222	223	232	223	224	22 26	236	8 25	205	31
(244)	(234)	224	217	224	232	228	236	234	227	14 47	252	7 12	205	47
225	224	226	230	232	230	232	234	233	227	2 16	236	7 49	215	21
230	224	225	228	230	232	232	232	235	229	14 11	243	11 04	219	24
226	221	223	224	226	227	229	230	229	229	10 30	235	16 50	221	14
231	235	233	229	224	225	223	194	213	225	15 43	245	22 26	175	70
238	238	235	233	234	232	231	232	233	232	14 15	241	0 00	222	19
228	230	233	232	231	231	232	232	229	229	2 48	237	11 43	217	20
230	230	229	229	227	227	228	228	227	227	3 51	234	11 37	215	19
227	227	226	229	229	227	227	227	228	226	1 41	235	12 12	216	19
232	223	231	232	232	229	227	227	227	227	17 47	235	10 42	213	22
233	(232)	(230)	(229)	(228)	(227)	(226)	224	226	226	2 43	234	8 05	215	19
232	231	231	230	231	231	231	232	232	229				33	
227	227	227	228	229	229	229	228	229	226				20	
226	225	225	227	{230}	{231}	230	230	230	227					

## PORTO RICO MAGNETIC OBSERVATORY.

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34500<sub>r</sub> PLUS TABULAR QUANTITIES.

Day.	0 <sub>h</sub> -1 <sub>h</sub>	1 <sub>h</sub> -2 <sub>h</sub>	2 <sub>h</sub> -3 <sub>h</sub>	3 <sub>h</sub> -4 <sub>h</sub>	4 <sub>h</sub> -5 <sub>h</sub>	5 <sub>h</sub> -6 <sub>h</sub>	6 <sub>h</sub> -7 <sub>h</sub>	7 <sub>h</sub> -8 <sub>h</sub>	8 <sub>h</sub> -9 <sub>h</sub>	9 <sub>h</sub> -10 <sub>h</sub>	10 <sub>h</sub> -11 <sub>h</sub>	11 <sub>h</sub> -12 <sub>h</sub>	12 <sub>h</sub> -13 <sub>h</sub>	13 <sub>h</sub> -14 <sub>h</sub>	14 <sub>h</sub> -15 <sub>h</sub>
1*†	226	227	230	233	235	235	232	223	219	217	215	214	216	223	222
2	226	226	229	232	230	234	226	220	219	211	211	223	229	229	229
3	234	231	234	244	239	242	243	234	223	223	224	229	234	238	238
4	239	235	236	234	234	230	229	228	223	222	218	214	210	214	220
5	229	226	244	222	226	224	217	209	224	216	215	216	(216)	217	221
6	245	243	242	241	239	238	235	226	219	218	219	221	221	223	225
7	...	...	...	...	...	...	...	...	...	...	...	...	220	222	227
8	234	236	232	231	230	228	230	225	218	216	216	220	224	223	222
9	229	230	235	233	230	226	227	224	223	228	229	231	233	233	231
10	233	233	235	235	236	233	231	228	220	221	222	224	225	228	(229)
11*†	232	232	233	235	236	233	230	(225)	221	222	225	226	227	229	232
12	231	233	234	235	235	235	231	225	219	217	217	219	222	228	229
13	232	235	236	237	237	237	235	229	227	224	221	223	223	225	226
14*	233	236	236	237	237	238	233	223	217	214	212	211	210	217	223
15*†	228	234	234	235	237	238	235	227	218	211	208	207	209	216	220
16*	228	230	229	231	231	232	230	220	215	212	214	215	218	221	226
17	227	228	229	232	231	230	230	224	223	223	225	223	222	223	223
18	234	231	233	235	235	237	236	229	223	222	225	225	224	221	215
19	230	225	224	231	230	232	234	234	232	230	234	233	230	230	226
20	...	...	...	...	...	...	...	...	...	...	...	...	213	216	216
21	234	234	233	234	233	232	(231)	(230)	230	227	229	227	224	224	219
22	240	241	240	239	240	239	235	231	233	231	232	231	228	224	225
23*†	239	239	238	237	236	236	236	230	223	222	222	221	219	220	224
24*†	232	236	236	237	235	232	229	228	224	223	222	222	220	219	219
25*†	232	232	(233)	(234)	(234)	(233)	(231)	(224)	(220)	218	218	218	219	221	224
26*†	230	232	233	234	232	231	226	214	209	209	209	211	210	213	218
27*	230	231	233	234	234	233	230	(220)	211	208	208	212	215	217	223
28	236	237	239	239	245	237	234	227	221	215	211	211	216	220	225
29	231	232	236	238	238	237	235	228	217	213	(212)	(215)	(220)	223	227
30	228	233	238	242	246	251	249	239	231	237	231	228	224	223	224
Mean....	232	232	234	235	235	234	232	226	222	220	219	220	221	223	224
Mean*....	231	233	234	235	235	234	231	223	218	216	215	216	216	220	223
Mean†....	232	232	233	235	235	234	231	223	218	218	218	218	218	221	224

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1	237	236	243	248	250	255	248	248	235	229	229	229	229	228	226
2	233	240	242	249	245	245	243	238	231	227	225	226	222	221	225
3	248	247	244	249	249	247	247	243	237	234	231	233	233	232	229
4	251	241	244	246	250	246	240	235	231	227	226	226	228	230	231
5	239	235	235	236	235	234	232	229	225	215	221	227	227	226	226
6	229	231	238	238	242	239	229	223	220	219	218	218	218	215	213
7*†	233	232	231	231	231	231	230	226	221	217	214	213	213	212	214
8*	237	236	236	234	233	233	233	228	219	220	219	214	214	218	228
9	237	240	239	242	241	236	237	235	...	...	...	...	...	...	...
10	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
11	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
12	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
13	227	230	233	237	238	238	237	229	222	217	217	225	225	231	231
14	238	233	238	245	240	238	243	242	218	219	217	218	221	224	231
15*†	231	235	235	234	234	235	234	233	226	225	222	223	223	222	221
16*†	225	226	227	228	227	228	226	223	218	215	212	210	212	212	214
17*†	225	225	225	227	227	227	227	223	220	217	217	217	220	222	(223)
18*	232	232	232	233	234	234	229	221	217	213	213	215	218	219	219
19*†	232	231	230	230	230	230	230	230	220	220	220	219	217	213	213
20*†	230	229	228	228	228	227	227	224	218	216	217	221	224	224	226
21*†	232	232	234	233	234	234	232	228	225	220	222	223	224	224	224
22*†	232	231	231	231	230	229	228	222	214	212	208	213	214	219	220
23	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
24	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
25	226	231	247	235	234	237	235	232	230	230	233	235	236	236	232
26	231	232	234	234	233	232	231	228	220	214	210	217	221	221	221
27	229	230	232	233	233	235	235	232	224	223	224	227	222	217	221
28	227	227	232	232	233	235	234	229	237	232	224	221	217	229	229
29	237	241	248	248	250	249	245	229	238	228	230	232	226	226	233
30	238	239	239	244	244	245	240	231	223	215	215	215	215	218	219
31	236	229	230	234	234	238	237	229	219	(216)	215	215	218	222	224
Mean....	233	233	235	236	237	237	235	230	224	221	220	221	222	222	224
Mean*....	231	231	231	231	231	231	230	226	220	218	216	217	218	218	220
Mean†....	230	230	230	230	230	230	229	225	219	217	216	217	218	218	219

\* Ten least disturbed days.

† Five international quiet days.

## HOURLY VALUES OF VERTICAL INTENSITY.

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SEPTEMBER, 1917.

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15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.		
219	225	228	230	233	233	231	230	230	226	236	9 00	214	22	1	
225	226	229	234	235	235	231	235	240	228	244	9 56	205	39	2	
234	232	234	235	239	243	244	244	244	236	249	8 07	221	28	3	
222	225	227	229	233	237	237	236	236	228	242	12 29	209	33	4	
223	226	232	235	242	253	253	254	248	229	259	7 53	201	58	5	
224	...	...	...	...	...	...	...	...	0 30	245	8 15	215	30	6	
227	226	227	228	230	229	232	233	234	225	234	13 00	216	18	7	
(221)	220	224	222	225	222	228	229	232	225	239	10 00	216	23	8	
232	233	232	232	233	232	232	232	233	231	237	8 21	221	16	9	
(230)	230	231	231	232	231	231	231	231	230	237	8 45	220	17	10	
233	234	232	232	231	231	228	230	230	230	236	8 11	220	16	11	
231	233	233	231	231	226	229	231	231	229	237	9 33	215	22	12	
230	237	237	236	236	234	232	230	231	231	238	10 33	220	18	13	
228	233	233	233	233	233	232	230	227	227	238	11 20	208	30	14	
222	225	227	230	231	232	231	230	229	226	239	11 06	204	35	15	
229	231	230	231	232	230	228	226	227	226	233	9 48	210	23	16	
226	225	228	231	235	237	237	236	235	228	239	12 15	220	19	17	
217	(219)	221	225	229	230	234	232	232	228	238	14 35	210	28	18	
226	(223)	219	226	231	230	(231)	(231)	(231)	229	237	2 00	219	18	19	
220	219	222	224	228	228	230	228	231	...	...	...	...	...	20	
220	(225)	230	231	233	237	234	226	231	230	238	14 30	214	24	21	
226	226	230	231	234	234	236	236	236	233	242	14 23	221	21	22	
223	223	225	227	229	230	231	232	229	229	240	13 00	218	22	23	
220	219	221	223	225	225	227	229	231	227	239	14 07	216	23	24	
224	218	217	222	223	225	225	225	229	225	(4 00)	(234)	17 00	216	18	25
219	219	222	224	223	223	224	225	228	222	234	9 50	207	27	26	
226	229	227	228	226	225	228	231	234	225	235	9 40	206	29	27	
229	231	234	234	230	226	226	226	227	228	240	10 30	210	35	28	
228	227	231	236	235	234	232	229	227	228	239	8 55	212	27	29	
230	232	237	238	244	244	241	237	242	236	253	13 55	218	35	30	
226	227	229	230	232	232	232	232	233	228				26		
224	226	226	228	229	228	228	229	229	226				24		
224	224	225	227	{228}	{228}	{228}	229	231	226						

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34500 $\gamma$  PLUS TABULAR QUANTITIES.

232	(230)	232	238	238	237	239	241	236	237	5 30	256	14 11	222	34	1
230	228	226	240	242	249	244	243	244	236	4 25	250	13 39	219	31	2
228	232	232	230	229	236	233	234	235	237	3 37	256	14 24	226	30	3
234	233	235	235	235	233	236	238	240	236	0 04	257	9 43	224	33	4
226	222	221	222	227	227	227	229	230	228	0 00	242	9 58	211	31	5
216	219	221	223	226	229	229	230	230	226	4 37	248	14 07	211	37	6
212	212	213	(218)	(223)	(227)	230	232	234	223	24 00	234	14 10	209	25	7
232	229	230	233	233	233	234	234	229	229	0 29	240	12 38	209	31	8
...	...	...	...	...	...	...	...	...	...	...	...	...	...	9	10
...	...	...	...	...	...	...	...	...	...	...	...	...	...	11	
215	221	226	229	235	235	233	228	229	229	14 12	247	15 46	211	36	12
235	232	235	236	238	238	231	230	230	232	6 47	269	10 18	215	54	14
220	215	222	223	225	224	228	227	227	227	1 15	237	16 05	215	22	15
216	219	222	223	224	224	224	224	224	221	2 44	229	11 50	210	19	16
224	223	223	228	231	232	233	233	233	225	23 30	233	10 00	214	19	17
221	221	224	226	230	231	232	232	232	225	5 30	235	11 12	209	26	18
212	213	220	223	226	231	231	232	232	224	5 03	234	14 10	209	25	19
224	222	223	225	229	229	230	231	233	226	24 00	233	10 00	215	18	20
224	221	223	228	231	229	229	230	230	228	2 30	234	9 30	220	14	21
222	(225)	(228)	(229)	(229)	(230)	(230)	(231)	(231)	224	2 10	233	10 30	208	25	22
...	220	227	228	231	232	232	232	232	225	...	...	...	...	23	
222	214	220	221	223	222	228	228	227	225	0 24	234	16 06	213	21	24
233	234	234	232	232	230	230	230	232	233	2 34	252	0 30	225	27	25
222	222	225	226	226	227	227	227	228	225	2 00	235	10 30	208	27	26
224	229	230	230	226	226	224	225	227	228	5 52	238	13 45	214	24	27
233	227	233	232	235	249	248	241	235	232	21 00	250	12 57	211	39	28
237	239	240	239	239	239	230	229	238	237	4 16	254	9 46	221	33	29
223	223	231	232	236	232	228	229	235	230	6 00	249	10 00	211	38	30
225	225	235	234	234	239	237	233	232	229	20 16	241	11 06	212	29	31
224	224	227	229	231	232	232	232	232	229				29		
221	220	222	225	228	229	230	230	231	225				22		
220	219	223	225	{228}	{228}	230	230	231	225						

## PORTO RICO MAGNETIC OBSERVATORY.

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Day.	0 <sup>h</sup> -1 <sup>h</sup>	1 <sup>h</sup> -2 <sup>h</sup>	2 <sup>h</sup> -3 <sup>h</sup>	3 <sup>h</sup> -4 <sup>h</sup>	4 <sup>h</sup> -5 <sup>h</sup>	5 <sup>h</sup> -6 <sup>h</sup>	6 <sup>h</sup> -7 <sup>h</sup>	7 <sup>h</sup> -8 <sup>h</sup>	8 <sup>h</sup> -9 <sup>h</sup>	9 <sup>h</sup> -10 <sup>h</sup>	10 <sup>h</sup> -11 <sup>h</sup>	11 <sup>h</sup> -12 <sup>h</sup>	12 <sup>h</sup> -13 <sup>h</sup>	13 <sup>h</sup> -14 <sup>h</sup>	14 <sup>h</sup> -15 <sup>h</sup>
1	227	223	224	232	229	228	230	227	223	222	220	222	222	219	224
2	230	229	227	229	230	232	236	236	230	228	226	226	224	223	222
3	239	235	235	237	240	242	242	241	235	231	227	222	222	223	227
4*	245	245	243	243	244	244	243	240	239	234	228	222	221	221	223
5*	240	240	238	238	236	237	237	237	229	224	222	222	225	223	221
6*	236	235	232	231	(230)	(229)	(228)	(227)	(224)	(220)	216	218	222	226	227
7	225	227	231	231	231	230	229	230	229	226	221	219	221	226	225
8	(223)	(224)	(224)	(225)	(225)	223	226	225	223	217	216	216	219	218	218
9†	222	224	225	227	227	226	225	225	222	218	215	214	210	211	216
10†	222	223	223	226	227	227	227	225	223	220	217	220	221	221	224
11*	228	228	230	231	231	231	231	228	221	217	218	222	220	218	221
12	228	231	234	232	242	230	224	218	213	218	214	212	217	222	229
13	235	232	236	237	237	236	236	236	228	224	218	217	213	211	218
14	222	225	230	237	228	228	228	228	222	215	211	214	215	220	224
15†	229	230	231	232	232	234	234	234	224	217	212	211	212	217	219
16†	228	228	228	230	231	232	234	232	226	222	221	223	223	223	223
17	229	229	229	230	230	232	232	231	226	219	218	215	213	216	220
18	230	230	230	231	227	230	231	231	223	218	219	218	216	218	220
19	232	231	232	231	229	232	233	235	231	231	226	226	224	222	225
20	233	233	233	233	232	232	233	233	230	227	226	225	224	226	228
21	239	239	239	239	237	237	236	234	230	230	230	227	224	227	228
22*	234	236	236	235	232	231	231	228	222	219	219	220	221	224	225
23†	232	232	232	232	230	227	227	226	221	219	217	219	220	222	223
24	227	229	229	230	227	228	226	225	220	219	218	219	220	223	224
25	231	231	232	233	232	232	230	226	219	213	210	209	210	211	213
26	233	238	241	240	242	237	237	235	226	219	213	222	228	226	226
27	233	237	240	242	241	242	241	239	228	217	213	209	204	206	215
28	236	234	237	239	239	239	239	235	226	219	216	219	223	224	225
29	233	236	239	239	239	239	241	239	229	220	220	221	223	222	224
30	236	235	235	237	239	239	241	239	237	231	225	221	220	224	224
Mean....	231	232	232	234	233	233	233	232	226	222	219	219	219	220	223
Mean*....	232	232	232	232	232	232	232	230	225	221	218	219	219	221	222
Mean†....	227	227	228	229	229	229	229	228	223	219	216	217	217	219	221

DECEMBER, 1917.

34500 $\gamma$  PLUS TABULAR QUANTITIES.

1	228	227	227	228	230	231	232	236	229	221	213	210	204	206	212
2	232	232	233	233	236	235	230	231	226	218	216	214	208	216	216
3	230	229	229	228	229	233	230	232	229	226	227	226	220	218	217
4	237	236	236	236	233	231	234	236	229	228	218	216	218	221	216
5	238	237	238	238	237	234	234	237	233	231	228	228	230	232	232
6*	243	242	242	242	240	241	241	242	239	233	230	230	227	228	229
7*	242	241	243	242	240	241	243	244	237	229	226	227	227	228	232
8	228	232	238	241	242	242	243	242	237	225	215	214	221	222	219
9	240	241	(240)	(239)	(237)	(236)	(234)	(232)	229	219	210	207	207	218	229
10†	238	239	239	242	239	237	237	236	230	224	219	215	218	223	229
11*	236	237	239	240	239	239	239	239	232	223	223	223	221	227	234
12*	233	233	236	237	238	236	238	238	231	225	218	216	225	225	226
13†	234	234	235	235	237	239	237	240	234	226	217	216	222	227	234
14	238	238	239	240	242	243	243	242	236	222	212	219	221	226	227
15	240	243	242	243	245	244	245	245	244	236	223	215	216	221	224
16	240	239	239	240	243	240	254	255	238	226	213	196	204	205	220
17	263	266	263	262	261	263	260	261	266	263	248	234	229	220	221
18	250	251	249	242	236	236	236	239	249	236	234	235	234	236	236
19	252	252	251	250	251	251	249	249	246	238	236	233	233	234	230
20	249	250	247	246	245	240	246	246	240	236	232	229	226	226	227
21*	253	253	252	251	250	249	248	249	248	238	233	228	225	227	234
22†	256	256	256	255	253	252	252	251	244	237	231	229	230	235	236
23†	253	254	255	255	254	253	252	253	253	249	243	241	237	237	237
24*	246	250	254	255	252	249	249	248	243	235	229	226	228	231	231
25*	246	250	251	251	250	251	250	250	245	237	228	220	216	222	230
26	251	253	254	256	254	259	248	248	242	238	233	226	226	227	233
27	253	257	257	259	262	263	263	260	252	243	231	223	223	228	235
28	250	252	253	254	258	260	260	258	248	239	232	228	230	232	232
29	254	254	253	253	256	261	261	257	249	244	234	231	234	240	240
30	254	254	257	256	253	255	259	263	263	257	249	242	236	239	244
31†	249	248	248	251	249	251	253	256	255	252	246	243	239	236	242
Mean....	244	245	245	245	245	245	245	246	242	234	228	224	223	226	229
Mean*....	244	245	246	246	245	245	245	245	241	233	228	226	226	228	232
Mean†....	246	246	247	248	246	246	246	247	243	238	231	229	229	232	236

\* Ten least disturbed days.

† Five international quiet days.

## HOURLY VALUES OF VERTICAL INTENSITY.

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15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.	
225	226	228	229	231	231	231	230	230	226	20 35	234	13 15	219	15 1
222	228	230	234	236	238	239	240	240	231	24 00	242	15 12	219	23 2
229	262	235	238	241	243	243	245	246	235	23 50	248	11 57	220	28 3
223	229	233	236	239	240	240	239	240	236	1 06	246	13 50	219	27 4
227	225	228	231	235	233	233	235	235	231	0 00	240	14 16	220	20 5
227	227	228	228	227	225	225	227	228	227	0 30	237	11 00	215	22 6
222	222	223	223	224	223	(223)	(223)	(223)	225	2 36	233	11 45	217	16 7
218	218	220	221	220	220	222	222	222	221	7 20	226	11 00	215	11 8
222	223	225	225	223	222	221	222	222	221	7 00	227	12 15	210	17 9
229	229	229	227	228	226	225	226	227	225	16 07	231	10 30	215	16 10
226	230	231	230	229	226	226	227	226	226	4 48	233	9 56	215	18 11
231	230	232	235	241	238	235	234	235	228	4 47	250	8 15	210	40 12
224	228	231	230	228	228	226	224	228	228	3 19	237	13 51	207	30 13
227	228	230	232	233	231	230	230	230	226	3 21	239	10 22	211	28 14
222	228	230	231	230	230	229	229	226	226	6 50	235	12 11	209	26 15
224	228	230	231	235	232	232	232	230	228	6 45	235	11 00	220	15 16
223	222	226	228	229	228	230	231	230	226	7 27	234	12 09	213	21 17
221	220	222	222	225	226	224	231	235	225	23 50	239	12 02	214	25 18
223	226	228	231	232	232	232	237	233	230	2 00	239	13 27	218	21 19
231	227	229	232	234	234	236	238	239	231	23 58	241	12 06	221	20 20
229	228	228	230	230	232	232	232	230	228	1 00	239	12 30	224	15 21
226	227	228	228	226	227	230	232	232	228	1 55	238	10 00	218	20 22
226	223	223	225	224	220	222	224	226	225	1 57	233	10 30	216	17 23
227	224	222	225	225	226	226	227	228	225	5 15	230	11 07	216	14 24
220	214	223	226	226	225	226	226	226	223	3 19	233	11 45	207	26 25
229	232	239	231	229	232	228	234	237	231	4 33	248	10 10	212	36 26
224	231	230	232	232	231	238	234	234	229	1 59	247	12 53	201	46 27
224	232	239	239	237	236	235	235	232	232	0 18	240	10 25	214	26 28
230	235	237	237	238	237	235	235	236	233	2 47	244	11 24	219	25 29
226	228	229	231	233	232	231	229	230	231	6 20	245	11 48	220	25 30
225	227	229	230	231	230	230	231	232	228					23
225	227	228	229	230	228	228	229	230	227					20
225	226	227	228	{227	{226}	{226}	226	227	225					

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34500<sub>r</sub> PLUS TABULAR QUANTITIES.

216	224	225	226	224	226	231	231	233	224	7 35	236	12 23	204	32 1
221	218	223	225	229	230	230	231	231	226	4 29	238	12 21	204	34 2
(220)	218	219	225	229	227	227	225	230	226	5 26	237	14 24	216	21 3
218	224	227	225	225	229	233	237	237	228	23 15	239	11 50	211	28 4
233	232	233	232	232	232	232	238	244	234	23 13	244	10 42	225	19 5
231	234	235	236	238	237	239	240	240	237	1 00	243	12 48	226	17 6
234	236	234	235	234	232	234	234	235	235	6 22	248	10 38	224	24 7
235	232	232	238	239	232	234	237	238	232	6 32	245	11 00	212	33 8
236	236	235	233	234	236	235	234	237	231	1 30	241	12 00	204	37 9
231	235	236	236	237	236	234	234	236	232	3 45	243	11 44	213	30 10
234	233	232	232	232	231	230	231	232	232	4 37	244	12 23	218	26 11
227	232	233	233	234	233	232	231	231	231	6 54	241	11 00	217	24 12
240	240	239	239	240	239	237	237	235	234	19 15	241	11 03	213	28 13
223	229	236	237	237	237	238	239	239	233	7 10	244	10 32	207	37 14
228	233	238	241	243	243	242	241	240	236	7 00	246	11 50	211	35 15
223	224	240	246	261	266	261	240	254	236	21 02	275	13 24	184	91 16
225	232	234	238	242	245	245	245	245	247	8 47	273	13 37	216	57 17
237	236	241	243	244	244	249	250	249	241	0 53	265	7 10	228	37 18
236	240	238	246	251	246	246	247	249	244	19 12	254	14 25	226	28 19
227	229	233	238	240	243	243	246	251	239	23 22	254	12 22	224	30 20
235	238	238	241	242	242	242	248	253	242	0 32	255	12 39	223	32 21
238	241	244	243	244	245	248	250	244	244	1 15	258	12 00	227	31 22
240	245	242	244	248	247	245	243	245	247	1 50	257	12 49	233	24 23
236	242	241	242	243	243	243	244	242	242	2 07	256	12 38	223	33 24
237	240	241	244	246	247	246	247	247	241	3 30	251	12 43	215	36 25
241	248	256	257	256	253	250	250	250	246	5 15	263	12 32	224	39 26
239	243	250	253	254	250	252	250	250	248	6 00	265	12 14	220	45 27
241	248	249	255	255	255	253	254	254	249	7 17	261	13 30	228	33 28
244	248	249	252	257	253	253	253	254	250	5 04	278	12 40	230	48 29
252	247	248	253	257	254	253	252	252	252	8 10	264	13 04	236	28 30
248	246	248	249	253	249	248	247	246	248	8 15	256	13 00	235	21 31
233	236	238	240	242	241	241	241	243	238					33
235	238	238	240	239	239	240	241	239						28
239	241	242	242	{242	{242	{243}	242	243	245	241				

## PORTO RICO MAGNETIC OBSERVATORY.

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34500 $\gamma$  PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	247	244	246	249	246	248	250	252	248	246	239	236	236	236	239
2*	256	257	255	255	255	253	254	259	256	247	244	235	234	232	237
3	254	256	256	256	256	252	253	257	261	249	243	247	239	236	242
4	253	247	251	252	254	255	256	255	258	254	249	244	243	242	238
5	253	253	252	254	253	253	251	251	250	247	247	245	239	238	241
6	259	259	259	259	259	259	259	259	256	250	248	255	259	259	262
7*	266	266	266	266	265	264	263	264	260	253	249	248	249	254	259
8*†	263	263	263	265	264	263	262	263	261	256	(252)	(252)	(252)	252	259
9	262	264	264	265	(264)	(264)	(262)	(262)	261	254	246	246	250	257	261
10	262	265	266	267	270	265	265	266	262	259	257	254	254	252	251
11*†	262	265	267	271	271	271	272	271	267	259	250	242	238	243	249
12	262	263	264	267	267	268	270	274	269	262	255	256	257	260	256
13	265	264	265	266	268	270	271	271	268	255	245	244	247	248	261
14	259	266	266	266	267	268	269	269	268	263	258	260	257	257	256
15	265	266	265	264	265	266	268	273	271	261	254	243	244	255	256
16*	268	268	263	265	263	268	267	269	264	259	253	251	251	248	255
17*†	269	268	267	266	265	265	267	269	264	258	253	251	251	250	251
18*†	271	271	270	267	267	267	267	267	266	260	253	248	244	257	265
19*†	268	267	267	266	264	263	262	264	259	249	242	235	232	238	245
20	270	270	268	268	265	264	262	264	260	253	251	253	254	258	259
21	271	273	273	272	272	270	268	269	264	257	250	244	248	250	265
22*	273	277	277	274	273	273	271	267	261	254	249	249	249	250	254
23*	269	270	272	273	270	270	268	267	263	252	246	242	239	244	251
24	264	265	267	268	267	267	267	268	264	250	247	247	247	253	265
25	268	269	270	271	271	271	270	270	263	251	243	244	252	254	255
26	265	267	270	271	272	273	273	274	265	259	255	255	255	253	254
27	267	268	272	269	269	269	272	273	268	262	254	251	244	243	247
28	268	268	268	269	270	272	274	276	273	268	259	252	245	249	259
29	270	270	271	272	273	278	278	278	278	267	254	248	250	251	256
30	283	284	282	282	282	285	278	284	283	279	275	266	262	260	269
31	292	282	283	280	279	280	284	286	277	268	270	263	263	256	254
Mean...	265	266	266	266	266	266	266	267	264	251	249	248	248	250	254
Mean*...	266	267	267	267	266	266	265	266	262	255	249	245	244	247	252
Mean†...	267	267	267	267	266	266	266	267	263	256	250	246	243	248	254

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34500 $\gamma$  PLUS TABULAR QUANTITIES.

1	280	279	280	280	282	279	280	282	280	270	263	266	265	264	266
2	278	279	277	277	275	276	276	277	273	262	255	252	250	251	255
3*	276	276	276	273	272	272	273	274	273	268	265	260	267	271	274
4*	276	275	275	275	274	274	273	275	270	264	259	256	257	260	264
5	272	273	275	279	273	270	266	263	269	262	257	255	254	256	264
6	267	272	281	280	290	280	274	274	269	264	260	257	261	259	260
7	273	281	282	282	282	274	275	276	271	268	261	263	268	270	270
8*†	277	279	280	280	280	279	279	277	279	275	266	256	251	256	266
9	271	274	276	278	279	279	278	273	273	261	251	251	255	258	261
10	274	276	273	277	278	278	282	282	277	275	273	266	258	258	263
11	274	276	277	278	279	282	280	279	273	264	252	249	254	259	260
12	279	277	285	275	280	286	284	292	279	267	259	255	256	257	256
13	280	276	276	277	284	281	281	280	274	272	270	262	261	260	259
14	270	271	271	277	270	280	285	287	286	277	272	262	258	257	260
15	282	282	278	279	277	276	277	274	267	260	253	249	255	256	265
16	279	278	276	276	274	273	272	272	267	262	257	255	253	252	252
17*	276	277	275	275	273	273	273	274	273	265	262	261	261	261	261
18*	276	278	277	278	276	273	273	277	274	273	267	259	260	265	265
19*†	274	275	276	277	274	272	270	272	269	268	267	264	260	261	263
20*	272	273	275	274	273	272	272	273	269	263	259	256	253	252	248
21	264	263	278	281	278	278	280	274	273	264	263	262	263	260	259
22*†	273	276	277	280	280	279	278	276	266	264	263	264	265	264	267
23	278	279	281	282	281	282	281	278	269	262	260	255	255	256	253
24	275	281	279	281	281	282	281	278	271	268	261	262	265	268	272
25*†	275	277	278	280	281	282	282	281	272	267	262	259	259	259	260
26*†	272	272	273	273	276	276	277	277	276	274	269	265	263	258	258
27	271	271	271	272	272	274	276	276	272	271	269	266	265	263	260
28	272	277	273	277	277	274	279	281	281	271	265	267	271	271	267
Mean...	274	276	277	278	278	277	277	277	272	266	262	259	260	260	262
Mean*...	275	276	276	276	276	275	275	276	272	267	263	260	260	261	263
Mean†...	274	276	277	278	278	278	277	277	272	268	263	261	261	261	263

\* Ten least disturbed days.

† Five international quiet days.

## HOURLY VALUES OF VERTICAL INTENSITY.

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34500 $\gamma$  PLUS TABULAR QUANTITIES.

15h-16h	16h-17h	17h-18h	18h-19h	19h-20h	20h-21h	21h-22h	22h-23h	23h-24h	Mean.	Maximum.	Minimum.	Range.	Day.	
243	244	243	247	251	252	253	255	257	246	24 00	257	12 49	233	24 1
241	244	246	249	252	254	255	255	249	249	7 50	259	13 36	231	28 2
248	247	244	243	246	247	245	245	256	249	8 19	262	13 50	234	28 3
241	245	249	246	248	249	250	251	253	249	0 00	258	13 48	237	21 4
246	250	248	248	251	250	250	251	253	249	23 42	258	13 40	235	23 5
265	262	260	259	261	259	260	260	263	259	16 15	265	10 15	246	19 6
260	(260)	(260)	(260)	(260)	(260)	260	260	261	260	2 30	266	10 52	247	19 7
261	265	265	264	263	262	261	261	260	260	4 00	265	(12 00)	(252)	(13) 8
267	268	266	262	263	261	260	262	262	261	16 30	268	10 52	242	26 9
260	259	261	264	265	261	261	260	261	261	4 11	274	14 03	248	26 10
255	261	265	266	265	262	261	261	261	261	7 35	273	12 20	236	37 11
262	263	263	262	260	261	263	263	264	263	8 00	279	10 52	219	30 12
266	265	263	271	272	265	265	260	261	262	7 37	274	11 22	240	34 13
256	261	264	269	271	271	271	270	269	265	7 30	271	14 25	254	17 14
255	263	261	261	267	267	268	267	268	262	7 56	274	11 58	234	40 15
252	257	257	260	264	265	268	269	270	261	24 00	270	13 00	248	22 16
253	255	256	257	262	264	266	270	270	261	24 00	270	13 37	246	24 17
263	260	260	261	265	265	266	267	268	263	0 30	271	12 30	241	30 18
254	258	258	253	259	261	264	266	269	257	24 00	270	12 09	228	42 19
263	265	284	263	264	259	258	263	269	262	24 00	271	10 20	248	23 20
270	267	264	260	262	267	266	264	266	264	2 30	273	11 26	243	30 21
261	267	266	264	264	261	261	262	265	263	1 30	277	12 25	248	29 22
259	261	261	262	263	262	262	262	263	260	2 50	273	12 38	237	36 23
269	270	269	267	267	264	260	262	265	262	16 27	271	10 18	245	26 24
263	264	265	264	268	267	268	267	267	263	5 27	272	10 30	242	30 25
258	264	265	269	269	265	263	264	265	264	7 29	274	13 05	251	23 26
254	263	267	269	271	270	272	272	271	264	7 25	275	12 04	241	34 27
269	270	274	274	273	274	274	273	273	268	21 44	276	12 47	243	33 28
260	270	279	276	276	280	277	282	283	270	23 06	285	11 33	215	40 29
274	266	250	262	259	276	292	295	290	276	22 05	298	17 12	243	55 30
265	268	274	274	279	285	284	284	287	276	0 09	303	14 26	246	57 31
258	261	261	262	263	263	264	265	266	261					30
256	259	259	260	262	262	262	263	264	260					28
257	260	261	261	{263}	{263}	264	265	266	261					

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34500 $\gamma$  PLUS TABULAR QUANTITIES.

269	267	274	275	277	276	277	276	280	274	7 46	285	10 50	258	27 1
263	262	268	269	275	274	273	276	278	269	0 00	281	12 26	249	32 2
274	272	271	271	272	275	276	277	277	272	21 46	278	11 05	260	18 3
265	265	266	268	269	271	272	272	273	269	7 41	276	11 35	252	24 4
265	263	268	267	266	266	257	256	259	265	2 52	289	21 47	252	37 5
268	273	273	271	270	269	270	269	271	270	4 50	294	11 00	256	38 6
273	275	277	278	278	277	276	277	277	274	4 07	288	10 47	257	31 7
267	268	273	276	275	274	274	273	272	272	3 33	281	11 40	249	32 8
261	265	260	268	273	277	270	270	275	268	5 24	279	11 00	250	29 9
269	268	270	273	279	271	273	275	275	273	21 39	283	13 00	252	31 10
270	260	266	273	273	272	272	268	284	270	23 45	298	11 00	245	53 11
264	268	270	277	278	278	278	277	283	273	7 08	297	14 56	250	47 12
260	257	267	275	276	277	277	273	283	273	0 10	298	15 49	251	47 13
262	261	266	269	276	277	278	277	280	272	6 15	291	13 20	256	35 14
257	275	256	265	273	273	278	278	280	269	1 13	282	11 30	248	34 15
257	261	261	267	272	274	276	276	277	267	0 35	280	14 03	250	30 16
266	264	265	266	269	273	274	277	276	270	1 52	280	11 29	258	22 17
268	268	269	268	268	272	271	271	273	271	3 58	280	11 57	256	24 18
266	268	267	269	270	270	270	271	271	269	3 14	279	12 07	258	21 19
255	259	264	261	265	267	268	270	271	271	7 34	275	14 35	247	28 20
261	267	271	272	271	271	271	272	272	269	6 16	283	1 14	259	24 21
271	277	279	279	279	277	276	276	277	274	3 51	283	9 03	261	22 22
258	271	273	268	271	270	274	275	275	270	6 33	283	13 48	249	34 23
274	273	274	275	276	277	278	277	277	274	1 38	285	10 09	260	25 24
260	264	270	272	275	275	274	273	273	271	5 35	283	11 47	258	25 25
260	266	271	272	275	275	274	273	272	271	7 30	279	13 57	257	22 26
261	265	271	272	277	281	276	277	271	271	20 00	284	14 40	255	29 27
261	(264)	(267)	(269)	(271)	(275)	274	273	276	272	6 50	283	16 00	257	26 28
264	287	269	271	273	274	273	274	275	271					30
265	287	270	272	273	273	273	273	274	274					24
265	269	272	274	{274}	{275}	274	274	274	271					

## PORTO RICO MAGNETIC OBSERVATORY.

MARCH, 1918.

34500 $\gamma$  PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	273	272	272	275	272	272	273	276	277	273	269	269	263	259	260
2	272	271	272	274	275	276	274	276	277	275	267	260	259	256	261
3	275	271	275	274	274	274	274	275	271	263	253	258	258	261	263
4*	285	284	282	281	277	278	277	278	276	275	270	269	268	265	266
5†	282	282	281	281	277	276	275	276	278	280	278	276	270	269	269
6†	276	276	277	280	275	275	272	274	275	276	274	266	264	264	267
7	277	278	279	279	276	274	273	274	272	270	268	269	267	265	267
8	305	312	313	321	308	303	302	297	278	271	271	269	264	268	(270)
9	286	286	286	288	286	284	279	275	273	273	274	280	282	281	277
10	275	277	280	281	280	280	277	274	265	260	256	258	256	264	265
11	273	275	279	286	286	283	280	276	273	271	263	261	262	256	262
12	273	276	265	272	278	287	285	277	273	268	266	256	257	262	262
13	279	278	277	281	285	284	284	281	275	270	270	269	264	260	260
14*	275	275	275	277	280	282	281	276	265	257	253	253	248	250	257
15	276	276	275	275	274	275	276	274	271	261	263	264	264	269	277
16	272	275	280	281	280	279	279	278	271	260	269	266	265	264	265
17*	280	279	278	279	277	278	276	272	268	263	259	255	253	253	257
18*	281	278	275	275	274	274	277	274	272	271	266	259	256	257	262
19†	279	279	278	278	276	275	274	275	276	271	265	262	260	261	265
20	280	281	283	280	275	271	275	272	270	264	261	259	256	258	261
21	276	278	279	277	276	275	273	263	255	256	251	251	253	256	257
22	279	281	281	281	281	279	276	272	269	261	260	261	263	269	269
23	279	283	284	284	286	284	281	274	263	257	252	250	251	254	264
24†	277	276	278	282	282	281	279	274	266	260	261	260	259	260	261
25†	275	275	276	276	277	277	276	272	261	256	252	247	250	254	254
26	275	275	276	278	275	275	277	272	265	261	261	258	253	254	259
27	275	271	277	275	276	278	279	275	274	269	266	268	267	269	273
28	274	273	270	273	276	274	275	274	271	270	267	265	261	257	256
29	273	270	270	273	271	270	274	271	271	268	267	266	264	265	(267)
30*	274	272	270	270	270	271	271	271	269	269	266	266	261	258	262
31															
Mean...	278	278	278	280	279	278	277	275	271	267	264	263	261	261	264
Mean*...	278	277	277	278	277	277	276	274	271	268	265	263	259	259	262
Mean†...	278	278	278	279	277	277	275	274	271	268	266	265	260	261	263

APRIL, 1918.

34500 $\gamma$  PLUS TABULAR QUANTITIES.

1*	279	278	277	276	276	276	273	271	265	267	264	261	261	265	268
2*	280	283	279	279	276	278	276	276	277	274	268	262	261	261	265
3	280	278	278	275	276	274	275	273	269	266	263	261	261	263	263
4	284	290	279	285	286	278	278	270	263	263	263	263	266	270	272
5	292	283	296	289	290	291	285	277	278	276	271	265	271	291	299
6	296	296	301	302	294	289	282	270	(284)	(286)	(287)	292	292	293	294
7	293	285	287	295	291	285	281	272	266	268	266	263	266	266	279
8	280	278	279	282	279	278	271	264	258	259	263	262	266	272	282
9	271	275	273	277	282	278	275	275	270	269	266	267	269	268	268
10	269	269	270	274	275	279	279	277	271	269	268	266	268	278	283
11	281	281	281	285	283	284	287	272	271	281	272	258	256	268	281
12	297	293	286	289	292	298	295	293	287	273	272	271	265	271	275
13†	280	278	279	279	279	280	282	280	281	281	272	269	265	268	266
14†	274	274	272	274	274	275	276	271	273	273	267	263	263	265	264
15†	272	273	272	270	270	273	273	273	269	272	266	262	263	267	266
16*	270	269	269	266	267	266	270	270	270	270	266	262	262	263	262
17*	271	271	270	270	268	268	269	271	274	274	274	273	273	275	270
18	280	280	278	276	274	271	269	264	259	262	258	261	270	270	268
19	271	264	281	281	279	274	274	272	267	269	266	267	272	275	275
20†	276	276	278	278	280	281	278	260	258	260	262	262	263	266	268
21	270	271	272	272	273	271	269	262	260	259	(261)	(261)	(263)	(267)	(270)
22*	271	272	272	274	272	269	266	263	264	265	264	266	268	272	277
23	274	281	283	282	287	279	275	273	274	278	281	289	294	295	297
24†	275	276	278	280	281	280	277	271	266	264	267	267	269	273	273
25	275	278	279	280	277	277	274	273	275	274	274	276	276	279	281
26	276	282	285	294	296	297	291	283	279	277	273	273	279	281	282
27	274	274	277	280	282	284	279	279	273	277	276	271	272	271	278
28	---	---	---	---	---	---	---	274	264	268	273	276	277	278	278
29	---	---	---	---	---	---	289	290	291	284	281	276	276	276	278
30	265	269	273	284	286	284	289	290	291	284	281	276	276	280	281
Mean...	278	278	279	280	280	279	277	273	271	271	269	267	269	272	275
Mean*...	275	275	274	275	274	274	273	271	270	270	267	265	265	268	268
Mean†...	275	275	276	276	276	276	275	271	269	270	266	265	265	268	267

\* Ten least disturbed days.

† Five international quiet days

## HOURLY VALUES OF VERTICAL INTENSITY.

91

MARCH, 1918.

34500<sub>r</sub> PLUS TABULAR QUANTITIES.

15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.	
264	269	270	271	273	275	274	276	271	271	8 11	278	13 50	258	20 1
260	258	263	266	271	271	275	280	275	269	22 07	281	13 19	252	29 2
264	268	268	260	269	274	282	292	289	270	22 27	293	10 43	249	44 3
265	267	270	272	274	275	277	279	282	275	0 00	286	13 20	264	22 4
269	266	269	270	275	275	276	276	276	275	3 20	282	16 50	265	17 5
268	269	269	270	274	274	274	276	276	273	3 37	281	13 30	263	18 6
267	269	282	271	262	257	225	213	283	267	23 27	315	22 21	197	118 7
(274)	282	281	278	282	277	275	280	284	286	3 12	327	12 00	262	65 8
275	274	276	277	278	278	276	277	276	279	3 16	290	9 11	269	21 9
270	274	275	275	271	272	272	274	271	271	4 00	281	12 44	253	28 10
267	265	268	273	277	274	270	273	274	272	3 39	287	12 57	251	36 11
267	275	279	284	283	283	284	284	281	274	5 49	291	11 50	248	43 12
262	270	274	279	281	280	280	278	276	275	6 37	285	14 00	258	27 13
262	267	269	267	275	279	281	282	276	269	22 07	283	12 57	245	38 14
259	259	264	269	276	278	273	274	274	271	14 15	288	15 30	250	38 15
271	266	271	275	278	281	281	281	280	274	3 30	282	9 23	256	26 16
262	266	266	269	275	277	279	280	280	270	23 54	282	13 18	250	32 17
264	268	268	269	271	273	275	276	278	271	0 00	281	11 54	254	27 18
267	267	271	274	273	274	276	278	280	272	23 42	281	13 00	259	22 19
265	269	269	270	271	272	274	274	274	270	3 00	289	13 00	254	35 20
262	267	268	273	272	274	275	277	279	268	1 59	282	10 17	247	35 21
268	269	269	269	270	271	274	271	270	271	1 15	283	13 00	257	26 22
266	271	272	273	275	274	274	273	277	271	4 57	287	12 00	249	38 23
265	270	271	273	274	275	275	272	273	271	4 45	283	11 45	259	24 24
258	262	266	271	274	275	275	275	275	267	6 30	277	12 18	247	30 25
261	267	271	274	277	278	278	274	273	273	4 00	279	13 25	249	26 27
274	273	269	271	277	277	276	275	276	273	6 44	280	11 45	264	16 28
259	265	269	270	269	274	276	275	274	269	4 42	278	13 30	253	25 29
(267)	(270)	270	272	275	274	275	274	272	270	20 00	278	12 17	261	17 30
264	270	276	277	279	281	281	281	279	271	21 00	283	13 08	258	25 31
266	268	271	272	274	275	275	275	277	272					32
265	267	269	271	274	275	276	277	277	271					25
265	267	269	272	{274}	{274}	275	275	277	272					

APRIL, 1918.

34500<sub>r</sub> PLUS TABULAR QUANTITIES.

265	265	265	274	277	278	277	276	274	271	0 00	283	11 57	258	25 1
265	267	271	274	276	278	278	280	280	274	1 33	285	12 12	260	25 2
264	272	268	267	265	267	273	273	279	270	0 00	280	11 25	260	20 3
273	272	266	266	268	278	286	280	287	274	4 13	294	11 00	260	34 4
299	289	281	277	270	278	277	287	285	283	15 15	304	11 52	262	42 5
297	288	286	274	270	274	283	278	286	287	0 00	309	7 42	262	47 6
280	283	280	278	273	279	278	278	280	278	3 44	298	12 42	262	36 7
276	275	278	279	280	276	274	272	271	273	14 28	285	8 18	258	27 8
267	270	268	270	275	272	270	269	268	271	14 30	283	9 57	263	20 9
284	283	290	286	287	277	278	282	284	277	17 00	298	12 00	265	33 10
284	292	287	288	288	288	288	287	293	281	24 00	298	12 31	245	53 11
283	286	289	289	288	288	287	284	282	285	5 21	301	12 24	264	37 12
272	274	271	271	282	282	282	280	277	276	6 30	283	12 30	265	18 13
260	260	262	266	270	274	276	274	270	270	6 30	276	16 40	259	17 14
265	265	264	266	268	269	271	272	272	269	0 56	275	11 12	261	14 15
262	261	261	264	268	270	271	271	272	267	9 22	272	15 42	260	12 16
269	270	269	266	263	266	268	273	277	270	23 30	280	20 00	263	17 17
272	265	264	263	256	256	269	282	278	269	22 30	282	19 57	250	32 18
275	277	275	274	273	275	275	274	274	273	2 40	292	1 56	259	33 19
272	269	265	266	267	267	268	269	268	268	1 30	278	8 47	257	21 20
(272)	278	269	268	267	269	271	267	269	268	16 15	282	9 50	259	23 21
279	275	273	268	272	276	273	280	276	271	22 54	287	7 30	259	28 22
(297)	287	281	280	281	279	277	276	276	282	15 10	299	0 06	268	31 23
276	280	279	279	278	275	275	270	270	274	4 45	284	9 12	262	22 24
283	280	273	272	269	266	267	273	284	276	23 10	295	21 00	262	33 25
281	281	280	282	285	285	282	279	275	276	4 00	303	0 45	271	32 26
280	277	276	273	276	275	275	273	(272)	276	5 07	286	13 00	269	17 27
278	270	278	279	276	275	274	272	272	274	...	...	8 55	264	28 28
280	282	279	276	271	271	272	272	268	278	8 09	294	0 18	263	31 29
276	276	274	273	274	275	276	276	277	275					28
268	269	268	269	272	274	274	274	274	271					20
269	270	269	270	{279}	{280}	273	279	278	276	272				

## PORTO RICO MAGNETIC OBSERVATORY.

MAY, 1918.

34500<sub>T</sub> PLUS TABULAR QUANTITIES.

Day.	0 <sup>h</sup> -1 <sup>h</sup>	1 <sup>h</sup> -2 <sup>h</sup>	2 <sup>h</sup> -3 <sup>h</sup>	3 <sup>h</sup> -4 <sup>h</sup>	4 <sup>h</sup> -5 <sup>h</sup>	5 <sup>h</sup> -6 <sup>h</sup>	6 <sup>h</sup> -7 <sup>h</sup>	7 <sup>h</sup> -8 <sup>h</sup>	8 <sup>h</sup> -9 <sup>h</sup>	9 <sup>h</sup> -10 <sup>h</sup>	10 <sup>h</sup> -11 <sup>h</sup>	11 <sup>h</sup> -12 <sup>h</sup>	12 <sup>h</sup> -13 <sup>h</sup>	13 <sup>h</sup> -14 <sup>h</sup>	14 <sup>h</sup> -15 <sup>h</sup>
1	274	287	285	278	280	279	279	276	275	276	276	274	273	276	275
2	272	(276)	(278)	(279)	(279)	(279)	(278)	(275)	272	275	276	272	268	268	270
3	277	274	273	273	270	268	268	270	270	277	274	270	274	277	276
4	275	277	275	273	273	272	271	269	272	278	284	286	290	288	286
5	274	273	276	280	280	274	273	267	268	270	272	277	285	290	296
6	283	278	276	276	275	274	271	264	258	262	269	271	273	276	280
7†	274	276	279	281	277	275	271	263	257	255	255	253	253	260	265
8†	268	272	276	276	274	276	275	266	255	250	248	248	254	266	272
9†	276	274	276	279	277	276	273	267	264	267	269	273	273	275	277
10*	272	270	275	278	279	282	279	271	263	263	262	262	263	270	272
11	270	271	275	277	279	279	275	271	265	264	262	260	258	262	265
12	272	271	272	271	271	271	276	277	271	271	272	270	270	270	270
13	271	268	269	271	273	273	276	271	273	273	271	272	273	273	271
14	268	268	268	269	262	264	265	260	262	262	268	272	272	271	272
15	275	274	273	267	265	269	268	275	274	273	271	277	283	282	288
16	276	276	275	274	276	276	274	272	272	271	269	271	273	276	276
17	282	295	298	290	296	292	282	282	275	282	283	288	290	283	285
18	279	282	275	276	279	275	276	268	271	272	268	269	272	278	283
19	281	281	282	283	281	280	271	261	262	262	262	263	272	278	275
20	278	275	275	277	277	277	271	268	271	270	266	268	274	276	277
21	276	279	279	279	280	279	276	271	266	266	267	270	274	276	278
22	277	277	276	278	275	278	277	271	271	269	271	272	275	277	278
23	272	272	275	273	273	274	272	268	268	264	256	253	254	256	261
24*	268	267	266	267	269	269	269	265	263	266	267	263	262	261	263
25*	266	263	267	270	270	272	271	266	258	259	260	260	261	257	266
26†*	268	267	269	270	270	272	272	269	269	272	268	262	262	264	270
27†*	266	264	264	264	266	268	266	263	260	259	261	264	269	269	271
28*	266	264	265	267	266	267	268	262	258	259	256	255	255	257	259
29	263	262	264	263	256	260	260	260	260	262	260	260	265	271	(270)
30	273	270	267	267	268	267	264	261	264	266	261	259	268	262	(264)
31	270	268	268	266	266	266	264	261	261	262	258	258	260	271	273
Mean....	273	273	274	274	274	274	272	268	266	267	267	267	269	271	274
Mean*....	270	270	271	273	272	273	272	266	260	261	262	261	262	266	270
Mean†....	270	271	273	274	273	273	271	266	261	261	260	260	262	267	271

JUNE, 1918.

34500<sub>T</sub> PLUS TABULAR QUANTITIES.

1*	271	271	268	268	267	264	264	259	259	261	268	272	272	272	273
2†*	268	268	268	267	265	263	263	263	265	270	274	275	272	269	272
3†*	274	278	276	277	275	274	271	271	277	281	282	279	279	279	282
4†*	280	280	280	281	279	277	274	269	265	268	274	274	277	277	281
5*	285	285	288	288	286	285	279	273	278	279	281	279	275	275	281
6	280	281	284	286	282	284	281	277	272	270	268	269	274	274	276
7	278	278	280	284	287	285	282	276	271	271	268	268	270	276	276
8	275	277	276	277	277	280	279	279	275	277	268	268	272	275	284
9	270	270	270	272	274	275	277	272	272	270	268	265	265	267	267
10	271	273	277	273	271	267	260	258	250	266	266	272	272	276	281
11	279	278	281	278	278	279	280	279	274	277	281	277	279	283	285
12	271	271	276	278	279	279	279	275	278	273	277	278	278	278	285
13	281	280	278	278	276	278	276	273	274	277	283	284	280	286	289
14	282	283	282	279	277	278	278	270	263	269	276	278	282	286	286
15	288	287	281	278	277	277	277	274	274	279	278	283	286	288	289
16	289	283	280	282	286	280	276	275	271	271	269	272	276	278	282
17	282	279	279	279	280	279	275	269	266	266	270	275	278	280	284
18	276	280	280	277	280	277	274	274	274	274	277	279	283	288	292
19*	287	288	288	288	289	283	283	283	282	281	282	287	293	297	298
20	284	284	287	286	283	282	277	272	276	283	288	287	285	285	284
21	280	282	285	284	284	282	278	276	270	270	272	278	284	282	284
22*	278	278	279	283	285	282	278	272	268	268	271	281	281	285	288
23*	279	280	280	282	282	283	283	280	281	284	285	286	284	275	273
24	277	277	278	279	276	280	279	271	269	276	279	275	271	270	271
25	276	275	275	273	275	274	275	275	276	279	278	278	278	278	280
26	272	272	271	274	274	277	275	271	273	273	276	282	283	281	283
27	279	277	281	279	279	281	278	274	276	281	285	285	284	284	283
28	282	278	277	277	277	279	277	271	275	279	281	277	279	282	284
29†*	283	282	281	281	281	281	281	280	278	276	273	(272)	270	271	278
30†*	286	283	282	282	282	279	279	277	275	277	282	(282)	(281)	(279)	(278)
Mean....	279	279	279	279	279	278	276	273	272	273	274	276	277	279	281
Mean*....	279	279	279	279	279	277	275	273	275	275	277	278	279	278	280
Mean†....	278	278	277	278	276	275	273	271	272	275	277	276	276	275	278

\* Ten least disturbed days.

† Five international quiet days.

## HOURLY VALUES OF VERTICAL INTENSITY.

93

MAY, 1918.

34500<sub>r</sub> PLUS TABULAR QUANTITIES.

15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum,	Minimum.	Range.	Day.	
271	274	277	278	277	277	277	277	277	277	1 52	293	15 47	269	24 1
270	265	269	271	271	272	272	272	272	273	10 20	279	16 25	263	16 2
276	273	270	270	271	272	275	275	274	273	13 28	279	6 12	264	15 3
285	278	274	274	274	275	277	274	274	277	13 06	291	8 00	269	22 4
285	283	277	276	275	275	276	276	277	277	14 59	302	8 00	263	39 5
282	278	280	278	275	274	273	271	273	274	0 10	284	8 22	255	29 6
267	270	267	270	270	270	271	271	271	268	2 44	282	10 00	253	29 7
274	276	277	273	279	276	270	271	275	269	6 11	279	10 30	247	32 8
276	274	277	282	278	277	276	272	270	274	18 50	283	8 00	282	21 9
273	271	271	275	277	277	278	275	276	272	5 00	282	12 05	261	21 10
266	269	268	272	272	271	273	277	278	270	4 04	280	12 36	258	22 11
272	271	272	274	272	273	274	275	274	272	7 18	282	12 07	268	14 12
271	270	271	273	273	276	278	275	272	272	22 37	279	1 24	266	13 13
273	273	273	263	268	272	275	276	276	269	23 30	276	7 38	256	20 14
285	282	274	275	276	273	272	277	278	275	14 56	291	3 30	263	28 15
284	263	266	254	257	270	283	287	276	272	22 24	292	15 51	244	48 16
281	291	290	292	281	279	284	285	287	286	4 20	303	8 16	272	31 17
284	285	278	283	277	279	277	281	279	277	1 16	289	10 56	265	24 18
278	276	278	277	275	269	279	275	276	274	3 28	285	7 29	255	30 19
281	282	278	280	274	271	275	269	277	274	15 49	287	22 11	263	24 20
283	284	283	280	278	275	271	275	278	276	16 05	286	8 46	263	23 21
282	284	280	277	271	270	274	271	271	275	15 45	285	20 23	265	20 22
266	268	269	269	269	267	268	266	265	267	2 56	279	11 00	253	26 23
267	275	273	273	269	269	266	266	264	267	16 30	275	13 28	257	18 24
274	276	278	277	274	274	273	270	268	268	16 30	279	13 39	256	23 25
273	271	270	269	272	272	269	267	267	269	16 00	274	12 14	259	15 26
271	269	269	271	271	271	270	268	266	267	14 17	273	9 42	257	16 27
263	260	262	265	265	266	265	266	266	263	5 45	269	12 46	253	16 28
(269)	267	267	268	270	270	274	274	274	265	21 09	274	10 08	256	18 29
266	273	270	268	270	274	274	274	274	268	16 24	276	7 55	257	19 30
270	267	265	263	268	270	272	272	272	266	14 00	276	7 53	257	19 31
274	274	273	273	273	273	274	274	273	272					23 22
272	272	272	274	273	271	270	270	270	269					
272	272	272	274	{274}	{273}	272	270	271	269					

JUNE, 1918.

34500<sub>r</sub> PLUS TABULAR QUANTITIES.

279	272	269	265	266	266	268	269	269	268	15 28	280	7 58	257	23 1
273	270	268	266	268	269	272	273	274	269	24 00	276	7 06	260	16 2
285	284	281	280	280	279	280	279	279	278	16 00	286	6 51	269	17 3
285	290	287	282	280	280	279	282	286	279	16 38	291	9 00	264	27 4
282	285	284	281	281	281	277	276	279	281	3 08	288	7 32	271	17 5
281	284	284	282	278	275	276	277	278	278	3 07	287	9 00	266	21 6
277	276	280	281	281	278	278	275	274	277	4 24	289	10 39	264	25 7
289	285	279	282	282	278	278	272	269	277	15 30	289	11 00	266	23 8
282	276	274	277	292	280	271	287	274	273	19 36	307	21 40	257	50 9
283	291	298	295	290	291	292	292	285	277	17 40	304	7 46	240	64 10
291	278	280	279	279	280	284	275	264	279	15 41	291	23 51	261	30 11
286	283	283	276	283	286	283	277	279	279	22 00	292	0 00	261	31 12
293	283	283	283	276	282	287	283	283	281	16 00	295	8 00	271	24 13
286	287	284	284	285	281	285	281	287	280	14 00	292	8 45	259	33 14
295	286	278	278	277	283	285	279	288	282	15 00	295	7 55	270	25 15
281	286	287	284	280	281	280	283	283	280	0 00	290	10 41	268	22 16
288	285	285	282	277	279	282	282	280	278	15 42	291	9 00	264	27 17
293	293	292	290	285	285	284	285	288	282	17 00	296	9 00	271	25 18
295	298	291	288	286	286	286	284	284	288	12 30	300	3 00	280	20 19
284	282	285	283	282	277	281	283	282	283	10 30	288	7 25	270	18 20
274	275	275	283	284	282	280	279	279	279	13 57	292	8 26	269	23 21
284	287	287	288	285	282	279	278	278	280	14 12	290	10 00	267	23 22
278	283	283	284	285	283	283	280	278	281	12 00	287	13 52	270	17 23
277	281	282	284	286	286	284	279	280	278	20 00	287	8 16	267	20 24
280	280	278	280	282	278	280	277	273	277	19 00	282	3 00	271	11 25
282	284	284	284	279	281	286	284	281	278	15 55	287	7 49	268	19 26
279	280	277	278	281	282	284	282	281	280	11 00	285	7 56	272	13 27
284	280	280	282	283	285	286	285	283	280	21 24	288	7 27	269	19 28
282	277	276	278	278	282	282	285	286	278	24 00	286	10 34	265	21 29
276	280	277	278	280	283	286	288	289	280	24 00	289	8 00	275	14 30
283	283	282	281	281	281	281	281	281	279					24 20
282	282	280	279	279	280	280	280	280	278					
280	280	278	277	{277}	{276}	278	278	278	276					

## PORTO RICO MAGNETIC OBSERVATORY.

JULY, 1918.

34500<sub>r</sub> PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	290	289	288	286	284	285	283	289	274	283	289	292	292	294	297
2	293	292	291	291	288	286	283	278	279	281	279	274	279	286	289
3	282	286	286	287	286	284	277	269	264	269	277	285	288	291	295
4*	288	288	293	289	288	285	283	277	267	271	276	281	288	288	290
5*	288	289	289	290	288	285	283	277	266	270	271	278	289	291	292
6*†	280	283	285	286	287	288	286	280	273	271	269	272	278	278	284
7†	281	280	282	285	286	287	280	277	268	270	274	276	283	284	282
8	274	280	286	287	291	287	290	285	285	285	282	276	269	273	280
9	285	281	281	279	279	284	283	277	271	279	285	278	277	278	285
10	282	284	285	284	285	288	287	284	280	284	289	285	278	276	276
11	291	291	286	286	288	289	286	284	285	287	285	278	278	283	289
12	294	288	288	291	289	290	289	286	284	286	289	286	284	286	286
13	289	290	288	288	286	288	289	287	289	290	288	...	...	...	...
14	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
15	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
16	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
17	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	...	...	...	...	...	...	...	...	...	...	...	...	...	...	270
19	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
20*†	289	290	291	291	290	289	289	283	276	281	285	289	289	288	289
21*†	286	286	285	285	290	290	291	286	282	285	286	289	289	289	283
22*†	283	280	280	280	280	280	282	282	282	283	281	280	281	284	284
23*	285	285	287	287	290	287	287	281	278	273	277	279	280	277	280
24	281	283	287	287	287	289	287	284	286	293	293	291	286	282	284
25	291	284	286	287	294	294	293	296	293	270	262	263	268	279	287
26	289	286	292	295	295	296	295	286	282	284	285	286	281	280	284
27	297	292	291	292	296	296	291	284	284	285	283	283	282	289	291
28	282	288	292	289	288	289	289	286	281	285	286	291	291	283	279
29	294	291	298	295	291	293	294	293	296	292	293	292	284	283	285
30	298	302	302	286	285	289	292	289	287	290	289	289	289	292	292
31	294	288	290	292	294	293	290	286	283	278	276	287	290	291	...
Mean....	287	287	288	288	288	288	287	282	282	279	281	282	282	283	286
Mean*....	286	286	287	287	287	287	286	281	275	276	278	281	285	285	286
Mean†....	284	284	285	285	286	287	286	282	276	277	279	281	284	284	284

AUGUST, 1918.

34500<sub>r</sub> PLUS TABULAR QUANTITIES.

1*†	282	282	284	285	285	285	285	276	269	267	270	273	280	280	281
2	282	283	281	277	270	277	282	282	281	279	281	287	294	294	296
3	294	296	296	298	297	296	287	283	282	283	286	286	296	302	304
4	290	290	291	293	292	291	292	289	284	284	285	282	285	291	294
5	288	284	284	283	279	279	277	274	279	287	292	293	297	292	288
6	286	293	294	295	298	298	293	287	283	278	281	292	296	295	298
7	293	289	289	290	289	292	292	289	288	293	297	298	298	303	310
8	295	292	296	295	296	300	299	291	287	288	288	285	286	290	291
9	302	300	303	297	297	299	298	293	292	287	282	282	291	298	301
10*	302	300	297	297	297	299	299	295	291	291	289	285	285	284	286
11	297	297	297	298	300	297	296	292	287	284	290	296	296	291	292
12	298	293	298	293	293	295	296	293	288	294	296	296	297	293	296
13	301	297	292	290	292	293	292	290	291	297	296	297	305	297	289
14	301	296	296	292	288	283	277	275	279	277	280	279	278	281	285
15	297	289	281	281	276	275	269	275	279	283	281	289	305	294	309
16	300	296	304	301	300	298	277	269	281	279	281	284	285	288	293
17	300	301	301	301	299	297	294	285	287	290	294	294	295	296	290
18*†	293	296	298	298	299	299	296	288	288	290	296	303	302	302	302
19*†	299	299	300	300	300	300	295	288	286	293	294	294	297	303	304
20*	294	294	297	299	299	299	294	283	282	284	283	280	285	286	288
21*†	295	297	296	299	300	304	301	294	286	284	284	283	284	287	293
22*	292	294	296	295	296	300	296	286	281	278	276	276	273	282	282
23*	290	293	293	294	294	297	297	290	284	284	280	281	283	288	289
24	289	287	289	289	294	287	289	283	279	281	283	279	278	280	277
25	297	299	301	300	299	297	296	294	291	282	277	277	282	282	286
26	302	297	297	300	292	294	292	285	282	280	293	293	288	286	287
27	302	297	297	297	295	293	294	287	282	286	289	291	291	296	295
28	302	297	297	297	298	296	292	281	273	277	281	282	283	284	284
29*	299	299	297	298	296	296	292	281	273	277	281	282	284	284	284
30*†	301	301	301	301	301	301	300	291	285	282	292	293	287	295	299
31	301	302	300	302	302	302	297	287	284	286	292	293	286	288	302
Mean....	295	294	295	294	294	294	291	286	284	285	286	288	290	291	293
Mean*....	295	296	296	297	297	298	296	287	283	284	284	284	286	288	291
Mean†....	294	295	296	297	297	298	295	287	283	284	286	288	290	293	296

\* Ten least disturbed days.

† Five international quiet days; July 6th used instead 19th.

## HOURLY VALUES OF VERTICAL INTENSITY.

95

JULY, 1918.

34500<sub>r</sub> PLUS TABULAR QUANTITIES.

15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.	
291	285	285	286	285	288	292	293	292	287	14 24	301	7 42	263	38
281	281	281	281	280	280	281	282	281	283	14 14	295	10 37	271	24
298	292	285	282	281	280	280	280	282	283	15 36	298	8 21	263	35
290	287	284	284	284	284	284	284	285	284	15 02	293	9 00	265	28
292	290	289	284	284	282	281	279	280	284	14 51	294	8 25	265	29
289	289	285	285	284	285	284	280	280	282	15 37	290	9 57	267	23
282	285	286	286	285	280	280	274	268	280	5 52	287	8 32	267	20
284	281	285	285	286	280	285	286	286	283	4 30	294	0 00	265	29
284	283	283	285	288	288	289	285	283	282	20 51	291	8 19	267	24
277	279	283	282	283	284	294	297	297	284	22 20	300	14 44	273	27
284	285	285	286	290	293	287	286	293	286	0 00	297	12 28	274	23
289	293	292	289	289	289	290	289	289	289	0 00	297	12 59	280	17
...	...	...	...	...	...	...	...	...	...	...	...	...	...	13
...	...	...	...	...	...	...	...	...	...	...	...	...	...	14
...	...	...	...	...	...	...	...	...	...	...	...	...	...	15
...	...	...	...	...	...	...	...	...	...	...	...	...	...	16
...	...	...	...	...	...	...	...	...	...	...	...	...	...	17
279	286	287	288	289	288	289	290	290	287	15 24	292	8 53	274	18
291	288	287	286	288	287	287	286	285	287	15 24	292	8 53	274	18
283	285	283	283	285	285	287	286	286	286	6 15	291	8 30	280	11
287	287	287	287	287	285	284	284	285	283	16 00	288	8 36	279	9
286	(285)	(284)	(284)	(284)	287	287	286	282	283	4 34	294	8 57	274	20
285	282	286	290	291	290	289	289	290	287	9 38	295	1 20	281	14
281	293	292	287	292	293	294	296	294	286	7 50	298	10 25	259	39
291	293	293	291	291	293	299	298	298	290	21 00	299	12 52	277	22
290	291	289	289	289	290	296	294	289	290	5 24	298	7 19	280	18
291	294	293	292	288	291	302	307	305	290	23 10	309	14 00	271	38
297	297	291	294	290	288	292	294	295	292	3 00	306	14 30	281	25
288	288	286	287	286	290	293	293	293	290	2 36	307	8 06	279	28
...	...	...	...	...	(287)	(286)	(285)	(283)	(281)	0 12	297	9 25	275	31
287	288	287	286	287	287	287	289	288	286	...	...	...	...	24
288	287	286	285	285	285	285	284	283	284	...	...	...	...	20
286	287	286	285	{286}	{285}	286	284	284	284	...	...	...	...	20

AUGUST, 1918.

34500<sub>r</sub> PLUS TABULAR QUANTITIES.

280	277	279	278	277	275	277	279	280	279	5 30	286	8 38	266	20
297	299	295	285	287	291	296	296	295	287	13 45	299	4 33	266	33
300	301	298	297	297	293	291	290	290	293	14 29	305	8 07	278	27
294	296	297	294	294	293	295	292	289	290	14 58	298	11 39	280	18
282	296	299	299	299	297	298	291	287	288	19 27	300	8 43	272	5
293	294	294	291	294	294	296	295	292	292	14 34	301	9 27	270	31
309	303	309	306	303	305	302	302	304	298	15 42	316	8 42	283	33
290	291	293	294	293	299	304	298	304	294	21 04	305	11 25	283	8
301	302	301	301	301	306	301	300	303	298	20 34	307	10 48	280	27
290	293	291	289	291	296	297	297	302	294	22 35	304	11 48	283	21
296	294	298	297	298	302	300	298	300	296	23 48	304	7 52	284	20
297	296	295	295	295	297	296	296	297	295	12 15	303	8 00	282	12
286	287	286	286	286	291	296	301	302	294	12 22	315	16 00	282	33
290	291	288	287	287	290	290	291	291	286	0 00	301	8 57	272	29
303	268	285	287	287	291	294	297	297	288	14 30	339	7 02	265	15
298	300	298	298	297	299	299	299	299	293	2 30	307	7 09	241	66
290	292	290	291	292	295	294	294	296	294	1 51	302	8 00	282	20
300	299	297	298	298	296	295	294	294	297	11 21	303	7 45	286	18
305	306	302	300	300	299	296	294	294	298	16 33	307	8 00	285	22
292	293	297	298	301	299	300	299	298	293	20 00	301	8 00	279	22
293	292	295	300	300	300	296	294	291	294	5 46	304	9 06	283	21
289	288	289	292	296	298	296	293	292	289	5 43	301	13 33	271	30
292	290	292	294	297	297	294	293	291	291	6 08	297	11 42	279	18
285	288	288	288	288	293	294	304	305	288	22 52	309	14 09	269	40
292	...	...	...	...	...	...	...	...	...	3 56	311	11 21	273	38
283	285	286	285	286	294	297	301	302	292	3 13	307	9 19	273	34
294	291	289	289	291	290	297	299	300	292	0 36	300	8 36	272	28
293	293	291	291	293	292	295	295	296	293	0 36	300	8 36	272	28
287	290	289	291	291	293	296	296	298	290	15 48	301	9 56	280	21
300	300	296	292	292	292	298	299	300	295	4 00	303	21 11	268	35
288	291	291	284	286	280	273	290	293	292	...	...	...	...	31
294	293	294	293	294	294	295	295	296	292	...	...	...	...	29
293	293	293	293	294	294	294	294	294	292	...	...	...	...	22
296	295	294	294	{294}	{292}	294	293	293	293	...	...	...	...	29

## PORTO RICO MAGNETIC OBSERVATORY.

SEPTEMBER, 1918.

34500 $\gamma$  PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	294	297	299	293	297	291	288	282	285	284	280	282	289	286	282
2	293	294	296	293	291	288	282	281	283	280	283	283	290	295	295
3	288	288	289	294	298	294	291	287	286	286	285	281	285	295	299
4	296	295	294	293	292	296	292	281	287	287	291	291	293	294	292
5	296	297	297	293	293	294	292	286	289	291	290	292	297	299	296
6	298	296	295	297	298	298	295	282	279	284	285	284	285	291	289
7	299	300	298	296	300	300	295	293	291	296	296	294	293	297	301
8	298	300	295	297	304	299	293	287	283	286	287	288	292	295	294
9*	298	298	299	299	296	297	296	290	289	289	286	285	286	289	294
10*	296	295	296	294	292	293	289	285	284	283	279	275	276	280	282
11†‡	291	289	288	287	286	286	285	281	280	280	280	278	277	279	279
12†‡	288	288	288	287	287	287	286	283	281	280	278	275	276	285	287
13*	293	298	299	298	294	295	293	285	278	282	287	292	301	302	303
14*	299	299	299	301	298	297	298	290	289	287	290	292	301	303	301
15†	304	308	304	303	303	300	297	292	286	281	278	276	279	279	285
16	302	306	306	306	304	304	295	289	287	288	290	289	289	288	291
17	303	304	305	307	308	307	302	291	283	290	290	284	287	291	295
18	301	299	289	295	303	312	313	302	294	294	294	295	296	298	300
19	297	313	321	312	308	317	307	297	292	290	285	286	288	287	297
20	301	306	301	296	304	311	296	287	286	285	280	281	280	285	291
21	303	292	303	300	290	281	284	286	278	295	298	292	289	293	294
22	305	306	309	311	311	313	310	304	304	302	300	298	294	294	294
23	299	303	308	309	310	312	309	302	297	291	285	286	291	293	296
24*	304	303	303	299	300	297	298	298	293	292	292	290	288	291	292
25†‡	310	307	302	301	304	303	302	300	298	297	298	298	296	296	296
26†‡	303	304	302	304	299	298	299	296	293	295	294	295	296	296	296
27*	294	305	300	299	300	299	295	294	293	291	289	285	286	286	287
28	297	299	301	301	298	296	296	291	280	(295)	(297)	(297)	294	305	299
29	292	287	285	288	(289)	(289)	(290)	(290)	291	296	298	296	293	294	289
30	311	308	305	304	303	305	303	296	291	289	292	295	289	297	298
Mean... .	298	299	299	299	299	299	296	290	288	289	289	288	289	292	293
Mean*... .	298	299	298	297	296	295	294	290	288	288	287	286	288	291	292
Mean†... .	299	299	297	296	296	295	294	290	288	287	286	284	285	287	289

OCTOBER, 1918.

34500 $\gamma$  PLUS TABULAR QUANTITIES.

1	302	307	307	307	310	302	299	294	289	289	289	290	293	293	295
2	303	301	301	306	305	302	301	296	296	293	288	296	295	293	294
3	306	295	296	304	308	304	300	295	290	288	287	286	287	285	290
4	297	298	298	303	303	301	298	297	291	288	286	287	290	291	294
5	302	301	302	307	302	302	302	301	299	294	292	287	284	286	286
6	307	301	304	306	305	307	306	301	296	292	290	290	292	289	289
7	310	308	306	308	307	308	304	295	294	295	299	299	296	297	294
8	300	302	304	299	303	307	301	299	299	289	280	271	269	276	278
9	313	311	324	320	316	311	308	306	300	297	295	292	290	289	289
10*	307	308	307	307	307	306	305	300	298	293	290	289	288	289	293
11†‡	306	306	304	304	303	303	303	303	294	290	287	287	284	283	284
12†‡	301	301	300	300	299	297	294	288	(284)	(286)	(289)	292	288	286	286
13†‡	298	297	297	296	294	293	291	287	287	281	282	282	281	280	280
14†‡	297	298	297	295	294	294	290	284	282	278	278	282	283	286	288
15	294	297	292	294	297	298	292	297	289	287	286	283	282	283	283
16	298	289	292	301	311	316	306	292	294	288	290	304	307	308	315
17	302	306	313	316	319	316	312	301	296	287	277	290	290	299	301
18	307	306	309	309	310	311	309	303	299	294	295	299	291	291	296
19	312	312	309	315	313	316	315	304	297	287	284	280	290	296	292
20	311	310	313	316	314	314	307	301	294	295	294	294	298	302	304
21	315	313	315	316	311	311	309	299	297	294	292	290	292	289	293
22	307	308	309	312	306	307	303	293	288	282	282	278	278	279	284
23	305	303	301	302	305	307	301	299	289	291	290	289	293	293	293
24	308	308	310	309	309	305	305	301	297	298	301	296	293	293	295
25	306	305	304	303	302	302	296	296	301	299	299	302	302	302	299
26*	311	313	311	308	308	307	305	299	294	294	295	296	298	294	292
27†‡	311	311	311	311	308	307	307	307	308	308	308	307	308	304	300
28*	312	312	312	311	310	308	305	299	294	299	294	296	298	303	304
29*	309	309	309	309	309	308	305	295	293	292	292	295	298	297	301
30*	306	307	307	308	307	305	302	296	292	289	286	287	292	296	299
31	302	293	300	305	305	298	300	306	305	(303)	(306)	(317)	320	314	311
Mean... .	305	304	305	307	307	306	303	298	294	292	290	291	292	292	294
Mean*... .	306	306	306	305	304	303	301	296	292	291	290	291	292	292	293
Mean†... .	303	303	302	301	300	299	297	294	290	289	289	290	289	288	288

\*Ten least disturbed days.

†Five international quiet days.

## HOURLY VALUES OF VERTICAL INTENSITY.

97

SEPTEMBER, 1918.

34500<sub>r</sub> PLUS TABULAR QUANTITIES.

15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.	
287	294	292	296	295	293	292	290	292	290	2 19	301	7 20	273	28 1
291	286	291	293	291	282	289	292	291	289	13 51	297	8 52	276	21 2
296	290	292	294	297	292	292	287	290	291	15 27	300	11 52	280	20 3
294	292	295	294	296	290	291	295	296	292	17 45	297	7 36	275	22 4
294	293	296	296	295	298	297	297	297	294	13 15	302	7 48	281	21 5
288	290	293	295	299	302	301	300	297	293	20 22	305	8 37	276	29 6
295	296	298	299	300	296	299	301	301	297	1 45	302	7 30	282	20 7
294	296	298	299	299	300	302	300	297	295	4 55	304	9 13	280	24 8
291	290	288	293	295	296	299	297	296	293	2 45	300	10 44	283	17 9
281	284	282	283	287	291	291	289	290	287	2 14	297	11 32	274	23 10
282	281	280	281	282	284	287	286	288	283	0 00	291	11 55	276	15 11
290	293	289	290	292	294	294	294	297	287	16 18	294	11 56	273	21 12
301	298	296	297	298	298	299	299	299	295	12 51	304	9 00	275	29 13
297	300	299	300	298	298	298	300	301	297	13 39	304	9 26	284	20 14
285	284	285	287	285	285	286	286	291	290	1 01	308	11 00	275	33 15
295	295	291	296	301	300	309	309	301	297	22 00	315	12 47	283	32 16
299	301	300	301	306	306	305	302	304	299	5 00	308	8 36	278	30 17
299	301	304	305	300	299	294	288	299	299	5 53	316	2 54	283	33 18
302	303	303	308	311	301	304	303	299	301	2 40	323	10 36	282	41 19
296	300	302	304	305	302	304	302	305	296	5 00	316	12 03	276	40 20
299	304	300	306	314	320	321	318	316	299	21 30	322	8 23	266	56 21
299	300	309	310	311	310	310	302	299	305	6 00	314	14 06	289	25 22
294	293	294	299	303	304	304	305	305	300	6 00	312	10 55	282	30 23
292	297	298	298	306	310	310	308	308	299	20 40	311	12 05	286	25 24
295	295	297	299	299	303	304	307	304	300	0 34	310	15 57	292	18 25
296	297	297	296	295	296	297	298	296	297	3 30	307	8 22	290	17 26
288	287	289	290	291	292	296	296	296	293	1 29	309	12 03	283	26 27
301	290	291	293	294	297	299	303	303	297	15 22	312	9 05	277	35 28
292	293	298	298	297	296	293	289	303	293	23 57	304	2 00	284	20 29
298	297	299	297	297	300	298	303	290	299	0 28	316	8 50	284	32 30
294	294	295	297	298	298	299	298	298	295					27
291	292	292	293	294	296	298	297	297	293					21
290	290	290	291	{294}	{297}	298	298	298	292					

OCTOBER, 1918.

34500<sub>r</sub> PLUS TABULAR QUANTITIES.

295	292	301	302	301	301	298	303	304	298	4 22	312	8 33	285	27 1
296	293	300	300	298	299	301	299	301	298	3 18	307	10 30	285	22 2
295	293	297	299	298	299	301	295	295	296	4 45	310	9 54	283	27 3
295	295	297	301	304	302	303	302	302	297	3 54	307	9 22	284	23 4
289	283	287	296	298	308	305	305	306	297	20 48	311	12 43	281	30 5
293	290	293	297	305	305	308	307	307	299	0 30	313	10 45	288	25 6
292	291	297	300	302	304	304	304	304	301	0 59	311	7 54	291	20 7
284	294	301	296	297	305	305	309	308	295	24 00	316	12 01	264	52 8
293	295	295	301	305	307	307	306	306	303	2 49	326	14 00	285	41 9
294	295	296	298	301	305	305	306	306	300	0 42	309	12 12	287	22 10
288	286	289	294	297	298	301	300	302	296	0 00	306	13 20	283	23 11
288	290	290	290	293	295	295	297	292	292	0 19	302	8 15	283	19 12
280	286	286	287	290	291	293	295	296	288	0 00	298	9 04	278	20 13
289	289	291	291	289	289	292	294	294	289	1 00	299	9 07	277	22 14
287	292	293	296	299	295	292	289	288	291	7 26	302	9 30	277	25 15
312	321	321	317	315	315	310	315	303	306	5 55	335	10 09	278	57 16
297	301	310	310	309	308	309	305	307	303	6 06	320	10 20	272	48 17
299	306	305	314	311	310	310	310	309	305	18 14	314	10 25	290	24 18
291	298	301	295	303	310	316	314	311	303	21 28	319	11 00	271	48 19
305	309	312	312	310	309	308	310	314	306	4 56	323	8 45	294	29 20
295	302	303	305	308	309	307	305	304	303	3 42	316	13 21	289	27 21
288	292	294	296	298	305	309	307	306	296	3 17	314	11 57	276	38 22
294	297	300	302	305	305	304	306	307	299	5 20	309	9 19	286	23 23
293	290	293	297	301	302	304	304	303	301	2 27	311	15 50	287	24 24
298	302	302	305	308	307	310	311	313	303	23 28	314	7 13	291	23 25
292	297	301	302	301	304	309	310	312	302	1 29	314	15 33	289	25 26
301	305	309	306	306	308	310	311	311	308	1 00	311	14 49	299	12 27
303	303	303	302	301	303	304	307	309	304	1 00	314	8 01	290	24 28
298	302	303	304	304	304	305	306	306	302	0 55	310	8 57	288	22 29
301	300	301	298	298	300	300	301	300	299	2 40	308	8 30	286	22 30
309	311	312	314	313	315	314	313	312	308	11 ..	(328)	1 24	286	42 31
295	297	299	301	302	304	304	305	305	300					29
293	295	297	297	300	301	302	302	303	298					21
289	291	293	294	{294}	{296}	301	301	303	295					

NOVEMBER, 1918.

34500<sub>r</sub> PLUS TABULAR QUANTITIES.

Day.	0h-1h	1h-2h	2h-3h	3h-4h	4h-5h	5h-6h	6h-7h	7h-8h	8h-9h	9h-10h	10h-11h	11h-12h	12h-13h	13h-14h	14h-15h
1	311	310	313	316	314	312	312	310	304	299	297	296	297	300	304
2*	309	311	312	314	317	315	312	307	299	293	292	293	296	303	306
3*	307	306	309	311	312	312	311	310	303	299	296	287	286	288	292
4	305	305	306	306	307	307	309	306	301	295	292	291	291	290	293
5†	306	305	305	306	308	310	311	309	300	295	290	290	290	290	291
6*†	303	302	303	302	303	304	307	304	303	298	295	297	300	302	301
7*†	299	299	300	300	300	301	304	304	297	290	285	284	287	286	289
8*	302	300	302	303	303	303	304	304	302	297	292	292	292	293	295
9*	306	306	306	306	305	305	306	302	298	298	298	300	298	296	300
10	306	306	306	306	305	302	304	304	300	297	297	297	302	298	299
11	324	319	319	323	323	322	323	322	305	300	301	309	310	307	302
12	325	328	318	326	328	327	312	315	306	301	301	304	304	301	307
13	321	319	325	324	315	311	320	319	310	307	310	305	297	301	301
14	323	324	324	323	322	324	320	321	314	310	309	304	303	308	304
15	318	322	318	326	325	320	319	314	311	307	302	307	306	303	312
16	314	324	323	324	323	324	318	313	308	303	300	298	308	310	311
17	316	319	319	322	321	318	321	320	306	300	291	286	291	295	295
18	301	303	306	306	308	309	309	309	298	289	288	296	296	293	295
19	305	303	304	307	307	308	308	303	298	291	287	287	293	297	296
20	308	308	308	306	306	306	306	301	297	292	287	289	290	290	288
21	304	303	300	301	304	303	304	302	301	294	288	283	277	280	283
22	301	300	299	300	299	297	293	294	290	288	292	295	297	296	296
23	304	307	315	299	317	313	309	307	311	301	290	301	302	311	315
24	317	313	314	314	310	310	314	314	319	310	308	297	300	297	292
25	320	320	320	317	315	314	315	314	312	309	304	305	306	308	313
26*†	318	317	317	314	312	312	311	307	307	306	302	304	306	306	307
27*†	315	314	315	313	315	315	312	312	311	310	308	309	307	309	312
28*	310	310	311	311	311	309	305	302	295	288	289	294	296	301	302
29	307	308	309	309	310	311	309	307	303	299	296	291	286	284	281
30	316	313	316	316	316	316	312	311	305	301	298	298	302	307	303
Mean...	311	311	311	312	312	311	311	309	304	299	296	296	297	298	300
Mean*...	308	307	308	308	309	309	308	306	302	297	295	295	296	298	300
Mean†...	308	307	308	307	308	308	309	307	304	300	296	297	298	299	300

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1	313	311	315	317	318	315	316	316	305	300	297	288	278	286	297
2	316	317	317	318	315	316	315	313	310	303	296	292	290	295	297
3	311	308	307	312	304	307	312	316	311	303	300	291	289	289	299
4*	313	315	317	313	315	317	315	316	316	311	304	294	294	298	299
5†	308	309	308	308	309	309	312	313	312	305	297	297	294	294	295
6*†	302	301	301	302	302	304	306	307	304	295	289	298	299	299	298
7	312	311	307	310	314	314	315	314	310	310	300	299	298	296	292
8	326	327	334	319	322	322	323	316	311	292	295	300	303	293	301
9	330	318	322	326	322	322	321	315	307	305	303	304	304	305	308
10	320	324	318	318	314	314	311	303	298	288	292	291	296	296	296
11	317	319	324	324	320	318	318	317	313	301	291	287	291	296	302
12	318	312	303	308	301	302	313	312	311	302	298	301	307	307	305
13*	312	313	315	317	317	316	311	306	298	286	281	280	281	289	301
14*	314	311	316	319	316	316	310	306	290	296	300	298	300	300	301
15*	312	315	318	317	317	316	316	314	310	305	303	297	297	297	299
16*	308	309	312	314	314	314	313	311	304	296	289	288	294	295	297
17	312	315	315	317	315	315	315	314	310	307	302	298	300	302	297
18	307	308	311	313	310	311	311	309	301	292	290	288	288	284	284
19	313	312	314	317	320	318	318	319	314	303	304	296	296	291	297
20	315	311	311	314	314	316	311	314	314	308	304	299	293	296	299
21	314	309	309	309	312	315	313	309	310	307	308	301	302	301	297
22	312	313	311	312	311	310	308	308	310	305	300	299	298	293	290
23	313	316	312	308	308	308	309	311	309	306	306	308	306	297	293
24	317	317	317	316	314	313	313	314	315	310	316	312	308	303	300
25	320	319	320	314	313	317	313	311	308	292	301	273	292	294	307
26	317	318	315	317	314	314	314	310	304	303	307	302	295	290	295
27	320	321	321	321	320	319	317	316	316	304	298	297	296	300	306
28*†	316	318	318	318	317	317	314	314	309	304	299	295	291	296	301
29*†	316	317	319	320	321	321	319	317	313	307	299	294	297	296	296
30*†	317	317	317	318	318	318	318	317	312	307	300	296	294	295	299
31*	310	310	311	313	313	313	313	308	303	303	302	300	299	299	302
Mean...	315	314	315	315	314	315	314	313	309	302	299	296	296	296	298
Mean*...	312	313	314	315	315	315	314	312	307	300	296	294	294	296	299
Mean†...	312	312	313	313	313	314	314	314	310	304	297	296	295	296	298

\*Ten least disturbed days.

†Five international quiet days.

## HOURLY VALUES OF VERTICAL INTENSITY.

99

NOVEMBER, 1918.

34500 $\gamma$  PLUS TABULAR QUANTITIES.

15 <sup>h</sup> -16 <sup>h</sup>	16 <sup>h</sup> -17 <sup>h</sup>	17 <sup>h</sup> -18 <sup>h</sup>	18 <sup>h</sup> -19 <sup>h</sup>	19 <sup>h</sup> -20 <sup>h</sup>	20 <sup>h</sup> -21 <sup>h</sup>	21 <sup>h</sup> -22 <sup>h</sup>	22 <sup>h</sup> -23 <sup>h</sup>	23 <sup>h</sup> -24 <sup>h</sup>	Mean.	Maximum.	Minimum.	Range.	Day.	
307	307	310	312	312	312	310	311	308	3 39	317	12 11	295	22 1	
306	306	307	308	306	306	307	306	306	5 00	317	9 30	291	26 2	
296	300	304	306	306	306	305	304	303	4 15	313	11 58	252	31 3	
295	297	299	298	301	307	311	309	307	301	21 30	311	14 00	259	22 4
294	296	301	301	305	305	304	305	301	6 20	311	14 00	286	25 5	
300	297	301	305	305	305	302	301	302	7 00	307	10 43	294	13 6	
291	292	297	298	301	303	303	302	296	7 10	304	11 00	282	22 7	
296	298	301	302	302	304	307	307	301	23 40	307	10 45	288	19 8	
299	299	299	300	303	306	308	308	302	22 33	310	13 14	294	16 9	
303	303	302	304	309	317	311	320	305	24 00	323	13 24	296	27 10	
294	316	314	307	318	327	319	329	328	315	21 57	333	15 26	286 11	
310	310	313	317	320	321	321	319	322	315	4 10	333	8 19	296 12	
312	321	318	319	323	321	323	323	323	315	3 08	332	12 36	294 13	
308	310	315	315	319	314	316	317	322	316	5 08	326	14 44	299 14	
313	321	321	317	313	312	313	312	315	314	1 26	329	13 11	298 15	
315	318	318	323	320	319	318	313	315	315	3 21	328	11 16	297 16	
301	309	311	311	307	306	302	300	301	307	6 25	322	11 12	281 17	
298	304	308	309	310	308	303	303	304	302	19 00	311	10 03	284 18	
297	311	311	312	314	314	312	312	312	304	19 00	316	9 47	285 19	
289	294	298	299	300	304	304	304	299	0 00	310	10 12	286 20		
287	292	293	296	297	299	300	301	301	296	4 49	308	12 24	275 21	
296	295	294	292	297	300	302	303	308	297	23 54	309	19 09	286 22	
314	318	314	317	317	317	317	317	310	310	4 42	323	10 56	284 23	
293	309	312	314	311	313	316	322	321	310	8 01	322	11 27	290 24	
313	311	309	308	309	309	312	313	318	312	2 03	322	10 49	302 25	
308	310	309	306	306	307	310	310	316	310	0 09	318	10 16	302 26	
311	311	311	310	308	307	308	309	311	311	0 00	317	21 36	305 27	
303	303	302	300	303	308	308	305	305	303	4 17	311	9 00	288 28	
280	290	305	300	301	300	307	321	320	302	22 14	323	15 24	269 29	
307	306	308	313	312	308	308	309	312	309	3 02	317	11 30	298 30	
301	305	307	307	308	309	310	310	311	306				28	
300	301	303	304	304	306	307	306	306	303				20	
301	301	304	304	{305}	{307}	309	308	309	304					

DECEMBER, 1918.

34500 $\gamma$  PLUS TABULAR QUANTITIES.

303	302	308	313	313	322	327	323	318	308	21 02	327	12 17	272	55 1
301	308	312	312	312	312	310	309	307	308	2 30	318	12 15	290	28 2
306	(303)	(306)	(307)	(309)	(310)	(312)	318	317	306	7 38	321	13 15	281	40 3
302	(304)	(306)	(307)	(307)	(308)	(308)	309	309	308	2 12	320	11 40	291	29 4
298	302	302	303	306	306	306	305	305	304	7 23	314	12 10	291	23 5
301	307	310	311	315	315	315	315	312	304	20 00	315	10 11	288	27 6
289	298	298	303	308	310	309	307	331	306	24 00	335	15 09	283	52 7
311	317	315	316	330	325	327	325	321	316	2 18	336	9 24	285	51 8
308	305	310	317	314	324	322	320	321	315	0 27	337	10 50	300	37 9
294	301	309	311	315	317	314	317	318	308	1 23	326	10 32	286	40 10
296	(304)	(308)	308	318	319	318	319	320	310	2 21	325	11 25	282	43 11
307	304	307	308	309	313	321	312	312	308	22 18	327	10 28	296	31 12
306	300	303	310	307	313	312	312	312	304	3 14	318	11 51	278	40 13
300	303	306	309	311	311	311	312	311	307	5 07	319	9 32	288	31 14
304	309	309	313	309	308	304	304	306	308	2 35	320	11 29	295	25 15
298	304	309	313	314	314	311	310	307	306	4 00	316	11 20	287	29 16
298	300	302	305	307	307	307	307	307	307	4 06	317	14 02	297	20 17
288	295	300	306	308	304	307	311	309	301	3 02	320	13 55	280	40 18
305	310	317	317	314	317	318	314	321	311	7 58	323	12 58	281	42 19
304	303	312	309	309	314	316	317	317	309	8 17	321	12 55	287	34 20
299	304	307	307	310	313	314	312	312	308	5 39	317	15 00	292	25 21
289	295	297	303	302	307	303	307	313	304	22 30	314	14 49	287	27 22
291	302	307	308	313	317	319	319	319	309	23 20	319	15 03	286	33 23
308	311	312	312	312	313	316	317	319	313	23 55	323	14 16	295	28 24
304	305	301	318	319	320	318	314	315	309	19 57	327	11 15	263	64 25
301	293	283	306	311	311	315	317	317	307	0 56	319	17 18	273	46 26
310	310	308	311	313	313	314	314	316	311	2 24	322	12 35	295	27 27
306	309	310	311	314	314	314	317	317	310	3 37	318	12 33	290	28 28
298	307	312	314	313	314	316	316	316	311	4 00	321	12 00	293	28 29
303	308	310	311	310	312	310	310	310	309	4 00	318	13 30	294	24 30
304	310	314	314	313	311	309	308	309	308	18 00	316	13 00	297	19 31
301	304	307	310	312	313	311	311	311	311					34 28
302	306	309	311	311	312	311	311	311	308					
301	307	309	310	{311}	{311}	312	312	313	308					

## EARTHQUAKES.

A Bosch-Omori seismograph has been in operation since September, 1903. It consists of two pendulums, one recording north-south motion (N) and the other recording east-west motion (E). In the following tables the times are Greenwich mean time counted from midnight.

Period of pendulums—N, 18 to 20 sec.; E, 17 to 18 sec. Magnification, 10. Steady mass, 10 to 12 kg.

*Register of earthquakes.*

No.	Date.	Component.	P	S	L	M	C	F	A
	1917.		<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>mm.</i>
350	Jan. 6	N	.. .. ..	.. .. ..	21 42 13	21 42 35	21 46	.. ..	0.2
		E	.. .. ..	.. .. ..	21 42 03	21 42 28	21 46	.. ..	0.4
351	Jan. 30	N	.. .. ..	3 10 ..	3 17 04	3 46 45	3 52	5 11	7.5
		E	.. .. ..	3 10 ..	3 16 45	3 38 00	3 51	5 05	6.0
352	Feb. 9	N	7 15 16	.. .. ..	.. .. ..	7 15 30	.. ..	7 18	0.2
		E	7 15 16	.. .. ..	.. .. ..	7 15 30	.. ..	7 17	0.2
353	Feb. 12	N	.. .. ..	.. .. ..	20 06 28	20 06 40	.. ..	20 10	0.3
		E	.. .. ..	.. .. ..	20 06 31	20 06 42	.. ..	20 09	0.4
354	Feb. 15	N	0 57 ..	.. .. ..	.. .. ..	1 19 30	.. ..	1 32	0.2
		E	0 57 ..	.. .. ..	.. .. ..	1 18 00	.. ..	1 38	0.1
355	Feb. 20	N	19 32 40	.. .. ..	19 35 25	19 38 40	19 42	21 45	65+
		E	19 32 35	.. .. ..	19 35 29	.. .. ..	.. ..	21 35	33.8
356	Mar. 6	N	.. .. ..	.. .. ..	3 20 24	3 23 58	.. ..	4 13	0.3
		E	3 12 36	.. .. ..	3 20 34	3 24 26	.. ..	4 13	0.2
357	Mar. 29	N	2 07 05	2 11 50	2 16 00	2 21 30	.. ..	2 51	0.3
358	May 1	N	18 46 43	18 56 27	19 22 27	19 25 27	.. ..	.. ..	2.7
		E	18 37 35	18 56 25	19 21 50	19 22 55	20 00	21 27	2.7
					19 40 15	.. ..	.. ..	.. ..	1.3
359	May 9	N	16 35 ..	.. .. ..	.. .. ..	17 12 30	.. ..	18 08	0.3
360	May 31	N	9 09 10	.. .. ..	.. .. ..	9 33 45	9 42	10 30	1.8
		E	9 09 10	.. .. ..	.. .. ..	9 33 40	9 39	10 25	0.3
361	June 8	N	.. .. ..	0 59 18	1 01 05	1 08 00	1 14	2 05	1.1
		E	0 56 51	0 59 18	1 01 05	1 05 00	1 11	1 57	1.0
362	June 13	N	7 09 44	7 18 48	7 39 ..	7 40 ..	8 00	9 03	0.1
		E	7 07 15	7 18 36	7 38 ..	7 40 ..	8 00	9 08	0.2
363	June 26	N	6 09 36	6 16 54	6 40 48	6 43 28	.. ..	.. ..	0.7
		E	6 09 01	6 15 11	6 40 45	6 43 00	7 04	9 04	4.0
364	June 30	N	17 54 30	17 57 38	18 00 13	18 06 31	.. ..	18 26	0.1
		E	17 54 33	17 57 37	18 00 15	18 03 20	.. ..	18 20	0.1
365	July 13	N	5 14 25	5 14 48	5 15 20	5 15 43	5 17	5 26	1.0
		E	5 .. ..	5 14 55	5 15 20	5 15 35	5 17	5 26	0.9
366	July 27	N	1 02 02	1 .. ..	1 02 26	.. .. ..	1 10	1 45	68+
		E	1 02 02	.. .. ..	1 02 20	.. .. ..	1 11	2 40	70+
367	July 27	N	16 16 02	16 16 38	16 16 54	16 17 08	16 20	16 26	7.2
		E	16 16 04	16 16 38	16 16 54	16 17 26	16 21	16 ..	9.2
368	July 29	N	6 10 52	.. .. ..	6 11 02	6 11 10	6 12	6 17	0.5
		E	6 10 50	.. .. ..	6 11 06	6 11 25	6 12	6 18	0.7
369	Aug. 7	N	11 27 53	.. .. ..	11 28 40	11 28 50	.. ..	11 35	0.2
		E	11 28 15	.. .. ..	11 28 40	11 28 55	.. ..	11 34	0.2
370	Aug. 9	N	16 15 26	16 .. ..	16 16 25	16 16 50	16 20	16 26	0.4
		E	16 15 31	16 .. ..	16 16 35	16 16 40	16 20	16 26	0.5
371	Aug. 30	N	.. .. ..	.. .. ..	3 33 ..	3 35 20	3 40	3 52	0.2
		E	3 28 18	.. .. ..	3 33 33	3 34 24	3 41	3 52	0.7
372	Aug. 31	N	11 40 17	11 43 42	11 45 23	11 48 10	11 53	.. ..	30.9
		E	11 40 23	.. .. ..	11 44 15	11 49 55	12 00	.. ..	35.2
373	Oct. 19	N	16 48 36	.. .. ..	16 53 00	16 56 32	.. ..	17 07	0.1
		E	16 47 50	.. .. ..	16 52 43	16 55 32	.. ..	17 12	0.2
374	Oct. 19	N	16 28 ..	16 39 ..	16 48 ..	16 57 ..	17 00	17 06	0.2
		E	16 29 ..	16 38 ..	16 43 ..	16 55 30	17 02	17 14	0.4
375	Oct. 22	N	7 24 12	.. .. ..	7 27 56	7 28 30	.. ..	7 33	0.1
		E	7 24 20	.. .. ..	7 27 52	7 28 16	.. ..	7 50	0.3
376	Oct. 22	N	.. .. ..	.. .. ..	.. .. ..	7 28 25	.. ..	7 ..	0.1
		E	7 20 ..	7 24 15	7 28 00	7 28 35	7 37	7 50	0.4
377	Nov. 16	N	3 48 ..	.. .. ..	4 17 ..	4 19 30	4 38	5 01	0.4
		E	.. .. ..	.. .. ..	4 15 ..	4 18 30	4 38	4 55	0.6
378	Dec. 21	E	.. .. ..	.. .. ..	18 24 55	18 36 ..	18 48	19 05	0.4
379	Dec. 29	N	22 57 20	.. .. ..	23 02 00	.. .. ..	.. ..	.. ..	.. ..
		E	22 57 05	.. .. ..	23 02 07	23 14 40	23 17	23 56	0.3

## Register of earthquakes—Continued.

No.	Date.	Component.	P	S	L	M	C	F	A
	1918.		<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>mm.</i>
380	Jan. 4	N	.....	.....	4 42 16	4 48 05	4 51	4 57	0.2
		E	4 36 53	.....	4 42 21	4 48 50	4 54	5 03	0.6
381	Jan. 16	N	.....	.....	13 33 ..	13 35 20	.....	13 47	0.1
		E	.....	.....	13 33 ..	13 37 15	.....	13 57	0.2
382	Jan. 25	N	1 25 35	1 29 35	1 32 20	1 36 15	1 38	1 57	0.2
		E	1 25 20	.....	1 32 15	1 35 20	1 42	1 55	0.5
383	Feb. 24	N	.....	.....	23 02 25	23 06 50	23 07	23 17	0.3
		E	.....	.....	23 03 50	23 05 20	23 07	23 16	0.1
384	Mar. 13	N	14 49 55	.....	.....	14 50 43	.....	14 54	0.1
		E	14 49 55	.....	.....	14 50 43	.....	14 54	0.1
385	Mar. 21	N	22 43 12	.....	23 00 40	23 03 57	23 12	23 50	0.4
		E	22 41 17	.....	23 01 20	23 09 06	23 12	23 50	0.4
386	Apr. 22	N	4 15 50	.....	.....	4 15 57	.....	4 21	0.4
		E	4 15 52	.....	.....	4 16 02	.....	4 21	0.4
387	May 20	N	14 42 31	14 47 38	14 49 37	14 49 57	14 57	15 33	1.8
		E	14 42 30	14 47 30	14 49 16	14 52 26	14 55	15 22	3.3
388	May 20	N	18 05 55	.....	18 14 ..	.....	.....	18 35	0.1
		E	.....	.....	18 13 30	18 14 42	.....	18 35	0.2
389	May 25	N	19 38 54	.....	19 46 25	.....	.....	20 00	.....
		E	.....	.....	19 46 21	.....	.....	20 00	.....
390	June 7	N	.....	.....	21 50 35	21 51 20	21 52	.....	.....
		E	.....	.....	12 39 03	12 39 17	.....	12 50	0.1
391	June 11	N	.....	.....	12 39 03	12 39 41	.....	12 50	0.9
		E	.....	.....	.....	.....	.....	12 50	1.7
392	June 22	N	22 10 17	.....	.....	.....	.....	22 25	0.1
		E	22 10 28	.....	.....	.....	.....	22 27	0.1
393	July 3	N	7 11 59	.....	.....	8 42 00	.....	9 07	0.1
		E	7 12 21	.....	8 33 48	8 42 16	8 48	9 04	0.3
394	July 8	N	10 45 01	.....	.....	.....	.....	10 52	.....
		E	10 45 12	.....	.....	.....	.....	10 52	.....
395	July 31	N	14 41 38	14 41 26	14 46 09	14 48 06	14 52 53	15 02	0.1
		E	14 41 26	14 46 09	14 48 06	14 54 10	14 57	15 02	0.2
396	Aug. 8	N	.....	.....	10 59 ..	11 03 ..	11 12	.....	0.1
397	Aug. 15	N	12 39 05	12 45 28	13 33 00	13 38 48	13 51	14 44	0.6
		E	12 39 03	12 45 40	13 22 15	13 08 35	13 51	14 46	1.2
398	Aug. 23	N	.....	.....	7 44 ..	7 52 ..	7 54	.....	0.1
		E	.....	.....	7 44 ..	7 50 ..	7 55	.....	0.1
399	Sept. 7	N	17 35 29	.....	18 07 38	18 25 16	18 39	20 28	4.0
		E	17 35 50	17 43 14	18 13 ..	18 32 14	18 37	20 19	4.8
400	Oct. 11	N	14 15 06	.....	14 15 12	.....	14 27	16 18	.....
		E	14 15 08	.....	14 15 08	.....	14 27	16 32	.....
401	Oct. 11	N	15 50 51	.....	15 51 20	15 51 34	.....	15 56	0.6
		E	15 50 54	.....	.....	15 51 54	.....	15 55	0.4
402	Oct. 11	N	16 02 27	.....	16 02 51	16 03 03	.....	16 10	1.8
		E	16 02 29	.....	16 02 28	16 03 13	.....	16 10	1.7
403	Oct. 11	N	17 04 18	.....	17 04 36	17 05 13	.....	17 33	32.4
		E	17 04 16	.....	17 04 26	17 06 38	.....	17 33	12.5
404	Oct. 11	N	.....	.....	17 18 54	.....	.....	17 24	0.2
		E	17 18 28	.....	.....	17 19 28	.....	17 23	0.2
405	Oct. 11	N	17 24 33	.....	.....	.....	.....	17 30	0.2
		E	17 24 20	.....	.....	.....	.....	17 28	0.2
406	Oct. 11	N	18 26 52	.....	.....	18 27 02	.....	18 31	0.3
		E	18 26 50	.....	.....	.....	.....	18 31	0.1
407	Oct. 11	N	19 09 01	.....	19 10 03	19 10 20	.....	19 18	0.4
		E	19 08 58	.....	19 10 06	19 10 26	.....	19 18	0.4
408	Oct. 11	N	20 07 06	.....	.....	20 07 35	.....	20 17	1.7
		E	20 06 53	.....	.....	20 07 53	.....	20 17	0.6
409	Oct. 11	N	21 51 55	.....	.....	.....	.....	21 57	0.1
		E	21 51 47	.....	.....	.....	.....	21 56	0.1
410	Oct. 11	N	23 32 15	.....	.....	.....	.....	23 39	0.2
		E	23 32 11	.....	.....	.....	.....	23 38	0.2
411	Oct. 11	N	23 48 57	.....	.....	.....	.....	23 51	0.1
		E	23 49 00	.....	.....	.....	.....	23 51	0.1
412	Oct. 11	N	23 58 42	.....	.....	.....	.....	24 00	0.2
		E	23 58 46	.....	.....	.....	.....	24 00	0.1
413	Oct. 12	N	0 00 12	.....	.....	.....	.....	0 09	0.4
		E	0 00 00	.....	.....	0 04 14	.....	0 09	0.4
414	Oct. 12	N	.....	.....	0 16 37	.....	.....	0 26	1.2
		E	0 16 10	.....	0 16 38	0 16 56	.....	0 26	0.7
415	Oct. 12	N	.....	.....	0 28 45	0 28 42	0 29 02	0 34	0.2
		E	0 28 18	.....	.....	.....	.....	0 33	0.3

*Register of earthquakes—Continued.*

No.	Date.	Component.	P	S	L	M	C	F	A
416	Oct. 12	N	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m. s.</i>	<i>h. m.</i>	<i>h. m.</i>	<i>mm.</i>
		E	0 33 16	— — —	0 33 40	— — —	— — —	0 45	0.3
417	Oct. 12	N	1 03 21	— — —	0 33 46	— — —	— — —	0 44	0.2
418	Oct. 12	E	1 03 14	— — —	1 03 34	1 03 56	— — —	1 06	0.1
419	Oct. 12	N	4 31 49	— — —	— — —	— — —	— — —	4 33	0.1
		E	4 31 43	— — —	— — —	— — —	— — —	4 33	0.1
420	Oct. 12	N	4 33 43	— — —	4 34 12	— — —	— — —	4 44	0.2
		E	6 58 30	— — —	4 34 07	4 34 43	— — —	4 41	0.2
421	Oct. 12	N	6 58 27	— — —	— — —	— — —	— — —	7 01	0.2
		E	— — —	— — —	8 10 04	— — —	— — —	7 02	0.2
422	Oct. 12	N	8 09 42	— — —	8 10 02	8 10 24	— — —	8 14	0.2
		E	8 19 39	— — —	8 20 02	8 20 24	8 23	8 41	5.5
423	Oct. 13	N	8 19 34	— — —	8 19 52	8 20 40	8 23	8 41	3.5
		E	4 52 19	— — —	4 52 39	4 54 17	— — —	5 04	1.9
424	Oct. 13	N	4 52 11	— — —	4 52 14	4 53 00	— — —	5 04	0.9
		E	18 19 38	— — —	— — —	— — —	— — —	18 25	0.2
		E	18 19 45	— — —	— — —	— — —	— — —	18 25	0.1
425	Oct. 13	N	20 23 47	— — —	20 24 11	20 25 20	— — —	20 30	0.4
		E	20 23 56	— — —	20 24 14	20 24 43	— — —	20 32	0.3
426	Oct. 14	N	0 25 18	— — —	0 25 42	0 26 05	0 28	0 40	9.0
		E	0 25 18	— — —	— — —	0 26 00	0 28	0 40	2.0
427	Oct. 14	N	2 16 20	— — —	2 16 48	2 18 00	— — —	2 22	0.2
		E	2 16 22	— — —	2 16 42	2 17 04	— — —	2 24	0.2
428	Oct. 14	N	4 53 27	4 53 47	— — —	— — —	— — —	5 03	0.3
		E	4 53 25	4 53 48	— — —	— — —	— — —	5 01	0.4
429	Oct. 15	N	— — —	— — —	0 14 13	— — —	— — —	0 24	0.2
		E	0 13 54	— — —	0 14 14	— — —	— — —	0 22	0.2
430	Oct. 15	N	3 15 46	3 16 13	3 16 26	3 17 25	— — —	3 29	0.7
		E	3 16 02	3 16 15	3 16 36	3 16 55	— — —	3 28	0.7
431	Oct. 16	N	19 20 25	— — —	19 20 47	— — —	— — —	19 31	0.2
		E	19 20 17	— — —	19 20 45	— — —	— — —	19 31	0.2
432	Oct. 17	N	8 19 40	— — —	8 20 00	8 20 44	— — —	8 26	0.4
		E	8 19 39	— — —	8 19 58	8 20 16	— — —	8 26	0.4
433	Oct. 17	N	21 29 29	— — —	— — —	— — —	— — —	21 36	0.2
		E	21 29 35	— — —	— — —	— — —	— — —	21 36	0.2
434	Oct. 18	N	19 22 35	— — —	19 23 19	— — —	— — —	19 29	0.2
		E	19 22 53	— — —	— — —	— — —	— — —	19 29	0.2
435	Oct. 18	N	21 34 17	— — —	21 34 35	21 35 51	21 37	21 58	3.7
		E	21 34 13	— — —	21 34 42	21 35 00	21 37	21 58	6.2
436	Oct. 19	N	3 28 12	— — —	3 35 28	3 37 13	3 39	3 54	0.2
		E	3 28 59	— — —	3 35 29	3 40 00	3 42	3 56	0.3
437	Oct. 19	N	7 05 48	— — —	7 06 24	7 07 14	— — —	7 14	0.2
		E	7 05 57	— — —	7 06 37	7 06 41	— — —	7 13	0.3
438	Oct. 21	N	6 44 48	— — —	— — —	— — —	— — —	6 49	0.2
		E	6 44 50	— — —	— — —	— — —	— — —	6 48	0.2
439	Oct. 21	N	6 49 12	— — —	— — —	— — —	— — —	6 55	0.1
		E	6 49 12	— — —	— — —	— — —	— — —	6 53	0.1
440	Oct. 21	N	13 08 59	— — —	— — —	— — —	— — —	13 11	0.1
441	Oct. 23	N	14 31 09	— — —	— — —	— — —	— — —	14 38	0.1
442	Oct. 24	N	22 59 38	— — —	— — —	— — —	— — —	23 04	0.1
		E	22 59 37	— — —	— — —	— — —	— — —	23 04	0.1
443	Oct. 25	N	3 43 26	— — —	3 43 29	— — —	— — —	4 38	—
		E	3 43 29	— — —	3 43 29	3 44 05	3 48	4 55	70+
444	Nov. 7	N	9 33 56	— — —	— — —	9 34 14	— — —	9 38	0.1
		E	9 33 59	— — —	— — —	9 34 23	— — —	9 38	0.2
445	Nov. 8	N	4 56 58	5 12 34	5 35 26	5 46 48	5 52	6 01	0.7
		E	4 57 00	5 12 37	5 35 30	5 36 08	5 54	6 15	0.4
446	Nov. 12	N	12 02 27	— — —	12 02 52	12 03 05	— — —	12 12	2.0
		E	12 02 24	— — —	12 02 48	12 03 04	— — —	12 09	0.8
447	Nov. 12	N	21 45 13	— — —	21 45 34	21 46 01	21 49	22 19	33.4
		E	21 45 15	— — —	21 45 33	21 46 03	21 49	22 17	63.8
448	Nov. 18	N	19 01 50	— — —	19 58 00	20 05 12	20 08	20 34	0.1
		E	19 02 25	— — —	19 47 10	20 03 08	20 08	20 42	0.3
449	Nov. 21	N	7 21 44	— — —	— — —	7 22 20	— — —	7 28	0.2
		E	7 21 57	— — —	— — —	7 22 15	— — —	7 24	0.3
450	Dec. 2	N	9 52 50	9 56 52	— — —	9 58 14	10 00	10 50	3.0
		E	9 52 44	9 56 52	— — —	9 57 50	10 00	10 50	0.2

*Register of earthquakes—Continued.*

No.	Date.	Com- ponent.	P	S	L	M	C	F	A
451	1918. Dec. 4	N	<i>h. m. s.</i> 11 55 59	<i>h. m. s.</i> 12 03 52	<i>h. m. s.</i> 12 12 20	<i>h. m. s.</i> 12 19 01	<i>h. m.</i> 12 25	<i>h. m.</i> 12 57	<i>mm.</i> 12.0
		E	11 56 12	12 10 30	12 14 30	12 14 30	12 25	14 02	2.4
452	Dec. 6	N	8 51 32	8 59 08	9 09 50	9 16 04	9 20	9 34	0.2
		E	... ... ..	8 59 02	9 09 11	9 16 31	9 20	9 32	0.2
453	Dec. 21	N	... ... ..	... ... ..	9 29 54	9 35 03	... ..	9 42	0.1
		E	... .. ..	... .. ..	9 30 25	9 37 09	... ..	9 50	0.1
454	Dec. 23	N	19 49 40	19 55 50	20 00 20	... .. ..	... ..	20 05	...
		E	19 49 31	... .. ..	20 00 11	20 00 25	... ..	20 08	0.1

## REMARKS.

354. Phases not well defined.  
 355. The stylus of N was off the sheet from 20:39:40 to 20:50:30. The maximum tabulated is the distance to the edge of the paper.  
 356. Preliminary phases uncertain.  
 357. Barely perceptible on E; no distinct phases.  
 358 and 362. Phases not well defined.  
 363. Beginning uncertain; N paper so thinly smoked that part of the record could not be seen.  
 366. Both needles off sheet from 1<sup>h</sup> 03<sup>m</sup> to 1<sup>h</sup> 06<sup>m</sup>.  
 369. Initial phases disturbed by wind tremors.  
 372. F lost on account of removing paper from cylinders at that time.  
 376. Very faint on N.  
 378. No record on N.  
 379. N not recording properly.  
 381. Unimportant; phases not distinct.  
 388, 389. No well-defined phases.  
 390. Only a few long waves on E; nothing on N.  
 391. Began while the paper was being changed; new sheets started at 12:39:03.  
 393. This may be the record of two earthquakes.  
 394. P is the only distinct phase.  
 397. S and L uncertain; a phase at 13:08:06 on N and 13:07:54 on E may be S.  
 399. The phase tabulated as P may be PR<sub>1</sub>.  
 400. Within 15 seconds after the beginning the pendulums swung against the stops with sufficient force to jar the stylus points from their bearings. E was replaced at 14:21 and N at 14:24. The large number of small shocks recorded during the rest of the month were of the same general character, beginning with waves of 1 to 2 seconds period and ending with waves of 4 to 6 seconds period. In a few cases there appear to be two or three longer waves of 10 to 12 seconds period, with the short period waves superimposed upon them.  
 400, 401, 402, 403, 406, 408, 414, 422, 423, 426, 435, and 443 were also recorded on the magnetograph, as well as secondary shocks at about 14:40 and 14:53.5 on October 11.  
 428. Possibly two or three separate shocks.  
 443. Stylus of N jarred from bearings at 3:42:50 and replaced at 3:53.  
 445. Phases doubtful; the one recorded as P may be PR and S may be SR. On E there are two long waves, period 28 seconds, beginning at 5:22:10, and four waves period, about 40 seconds, beginning at 5:26:30.  
 446, 447, 449. Probably of same origin as those in October. No. 447 was felt at Vieques.  
 451. Phases uncertain and difficult to correlate with other stations; one at 12:06:56 on N and 12:06:40 on E; possibly two earthquakes.  
 452. P and S very faint; L uncertain.

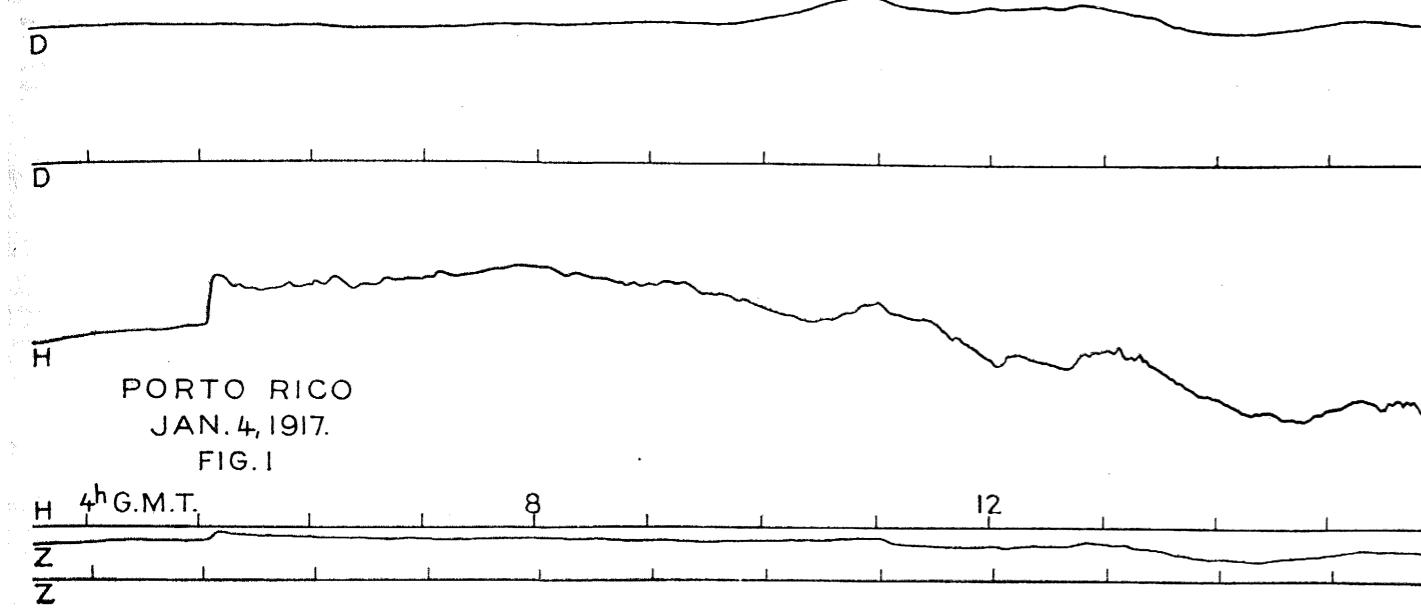
## MAGNETIC STORMS.

In the table below the relative magnitude of the disturbance is indicated by the figures 1, 2, 3, and 4. When a storm began abruptly, the time of beginning is given to the nearest minute. For comparison with similar data for other observatories the Greenwich mean time may be found by adding 4<sup>h</sup>.

On the succeeding sheets will be found reproductions of the magnetograms, showing the principal storms, reduced to three-fourths the original size. A storm selected for reproduction is indicated in the table by an asterisk after the date. Upward motion of the curves corresponds to increasing west declination, increasing *H* and increasing *Z*.

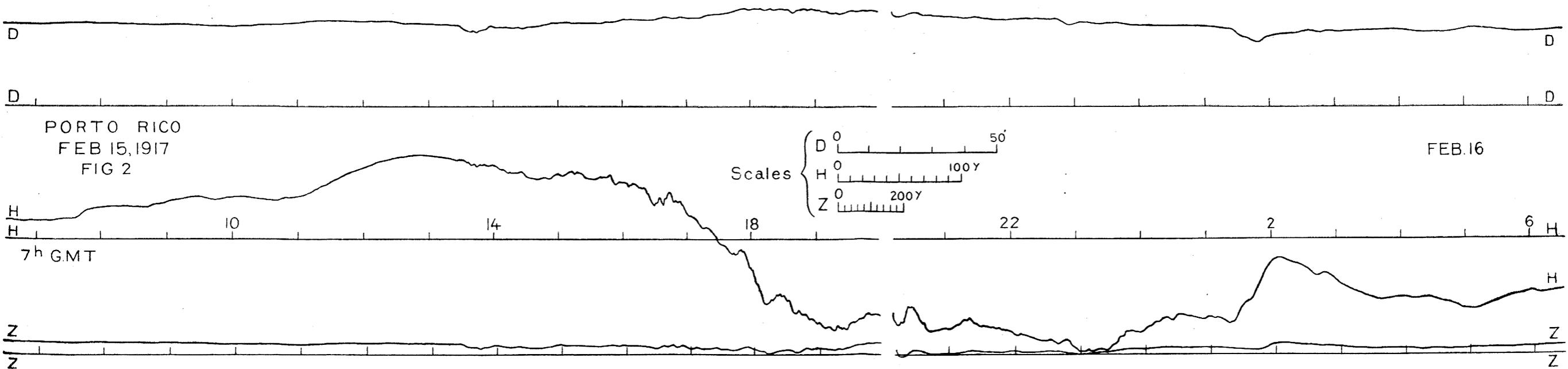
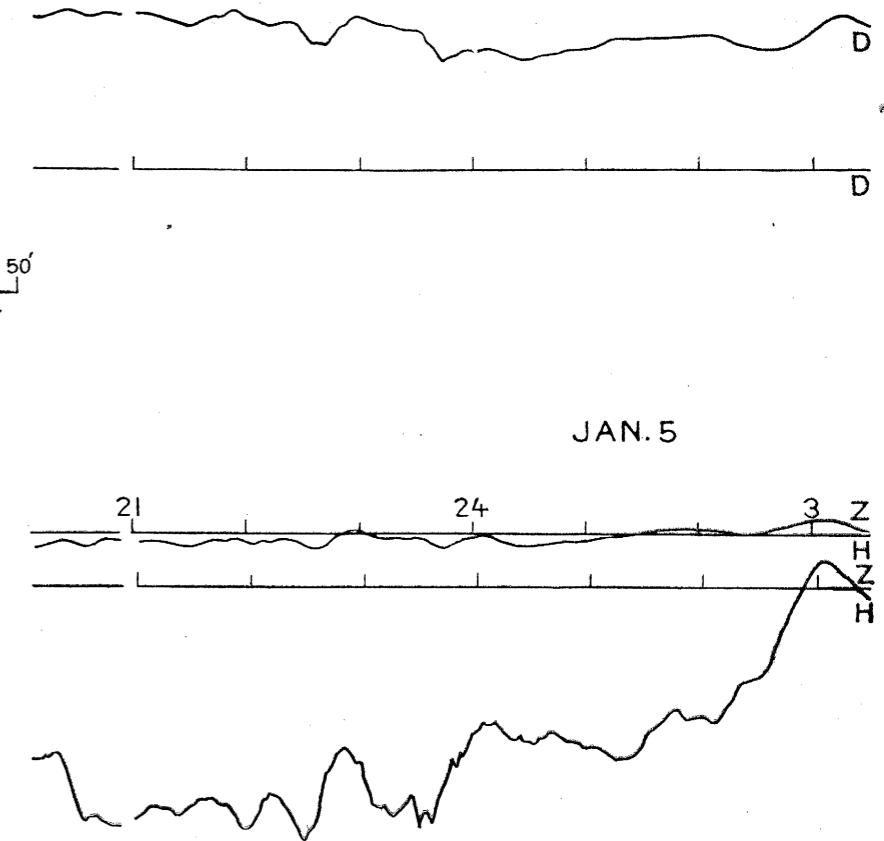
*Principal magnetic disturbances.*

Date.	Sixtieth meridian time of beginning.	Duration in hours.	Relative magni- tude.	Date.	Sixtieth meridian time of beginning.	Duration in hours.	Relative magni- tude.
1917.				1917.			
Jan. 4*.	1 03	42	2	Dec. 7.	6 18	40	1
Jan. 6.	5 07	66	1	Dec. 16*.	4 18	35	2
Jan. 9.	12	113	1	Dec. 18*.	0 47	15	1
Jan. 16.	7	46	1	Dec. 19.	16	23	1
Jan. 19.	11	169	1				
Feb. 6.	20	30	1				
Feb. 14*.	1 01	51	2	1918.			
Feb. 17.	14	73	1	Jan. 12.	0 03	54	1
Feb. 22.	17	34	1	Jan. 26.	12	27	1
Mar. 4.	8	56	1	Jan. 28.	10 47	130	2
Mar. 7.	17	36	1	Feb. 5.	2 51	51	1
Mar. 12.	1	48	1	Feb. 9.	15	113	1
Mar. 20.	2	22	1	Feb. 15.	5	28	1
Mar. 31.	6 22	46	1	Feb. 23.	10 23	17	1
Apr. 2.	15	99	1	Feb. 27.	14	38	1
Apr. 7.	15	55	1	Mar. 2.	21	26	1
Apr. 14.	23	82	1	Mar. 7*.	17 08	53	2
Apr. 25*.	10 24	33	1	Mar. 10.	9	60	1
Apr. 29.	17	160	1	Mar. 14.	21	45	1
May 16.	1 44	31	1	Apr. 3.	7	133	1
May 25.	5 05	143	1	Apr. 10*.	16 55	51	1
June 3.	11	21	1	Apr. 17.	11	51	1
June 6.	13 06	40	1	Apr. 24.	12	56	1
June 8.	20 05	54	1	Apr. 29.	17 18	39	1
June 12.	19	37	1	May 14.	18	160	2
June 21*.	16	121	1	May 29.	1	24	1
July 1.	23 41	75	1	June 9*.	11	85	2
July 6.	21 45	28	1	June 13.	11	109	1
July 9.	8	115	1	June 20.	17 12	38	1
July 21.	10	40	1	July 7.	15	59	1
July 27*.	10	127	2	July 10.	18	81	1
Aug. 7.	7	30	1	July 14.	11	45	1
Aug. 9*.	0 16	55	4	July 24.	22 50	27	1
Aug. 13*.	9	95	3	July 27.	19	85	1
Aug. 20*.	4 22	98	3	Aug. 2.	12	33	1
Aug. 25.	10	32	2	Aug. 5.	7	113	1
Sept. 2.	3	55	1	Aug. 10.	12	44	1
Sept. 4*.	19	43	2	Aug. 15*.	11 51	38	2
Sept. 8.	1	54	1	Aug. 24.	3	94	2
Sept. 18.	14	85	1	Aug. 31.	13	204	1
Sept. 29.	21	153	1	Sept. 15*.	21	174	2
Oct. 7.	10	63	1	Sept. 27.	22	225	1
Oct. 10.	23	19	1	Oct. 7.	22	34	1
Oct. 13.	11	40	2	Oct. 14*.	23	133	2
Oct. 24.	0	39	1	Oct. 30.	18	26	1
Oct. 28*.	2	110	2	Nov. 10.	8	176	2
Nov. 12.	0	30	1	Nov. 22.	20	51	1
Nov. 13.	14 14	20	1	Nov. 29*.	4	22	1
Nov. 18.	21	29	1	Dec. 1.	6	30	1
Nov. 25.	13	66	1	Dec. 7*.	14	107	2
Dec. 3.	4	41	1	Dec. 18.	3	97	1
				Dec. 24*.	23 51	48	2



Scales

D	0	50'
H	0	100γ
Z	0	200γ

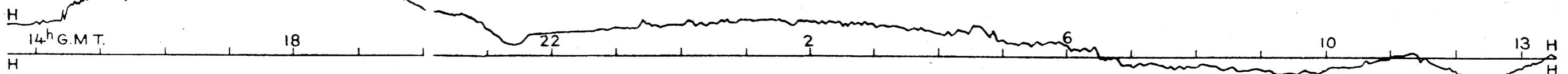
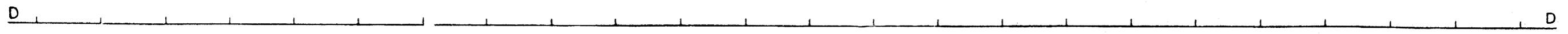


Scales

D	0	50'
H	0	100γ
Z	0	200γ

FEB. 16



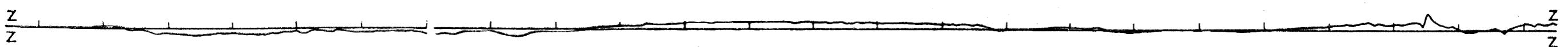


PORTO RICO  
APR. 25, 1917  
FIG. 3

Scales

D	0	50'
H	0	100Y
Z	0	200Y

APR. 26

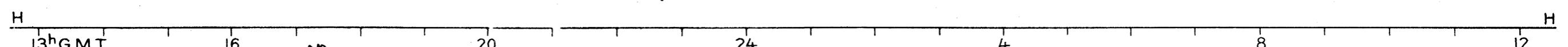


PORTO RICO  
JUNE 24, 1917  
FIG. 4

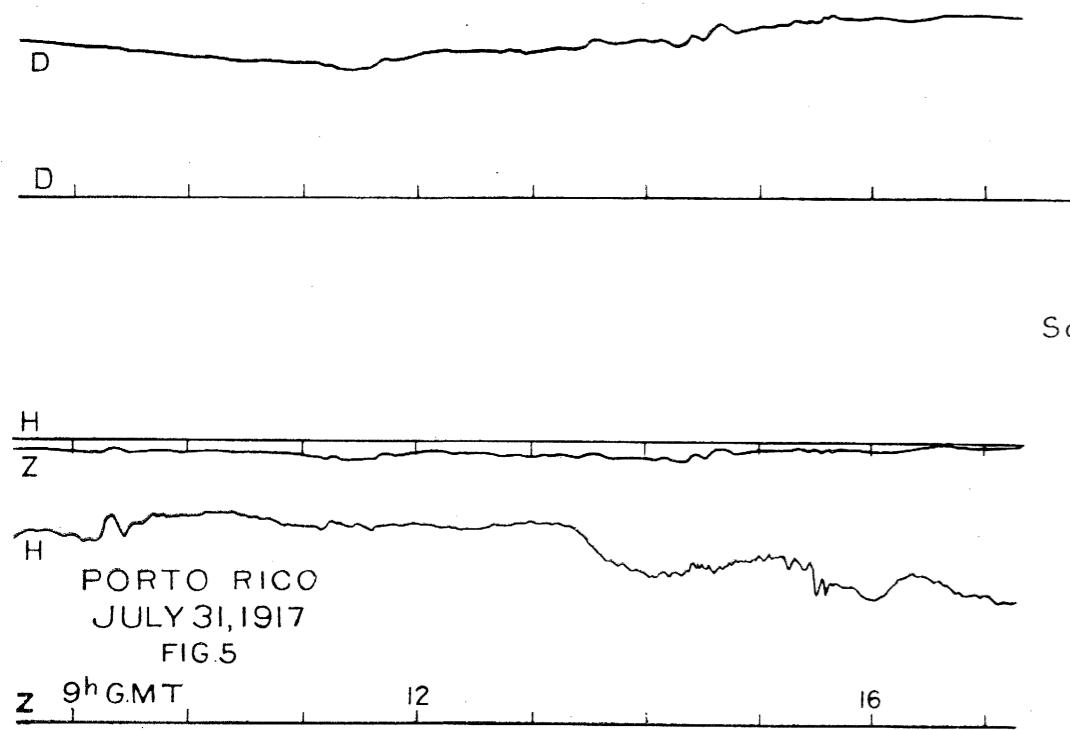
Scales

D	0	50'
H	0	100Y
Z	0	200Y

JUNE 25

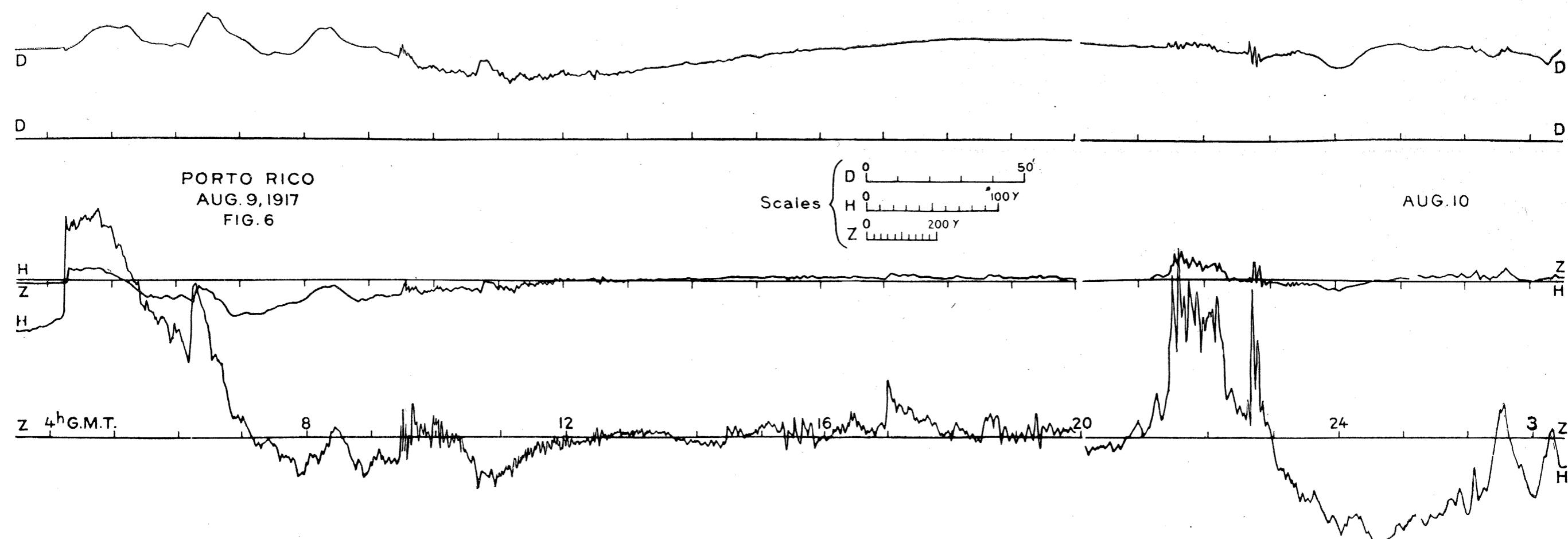




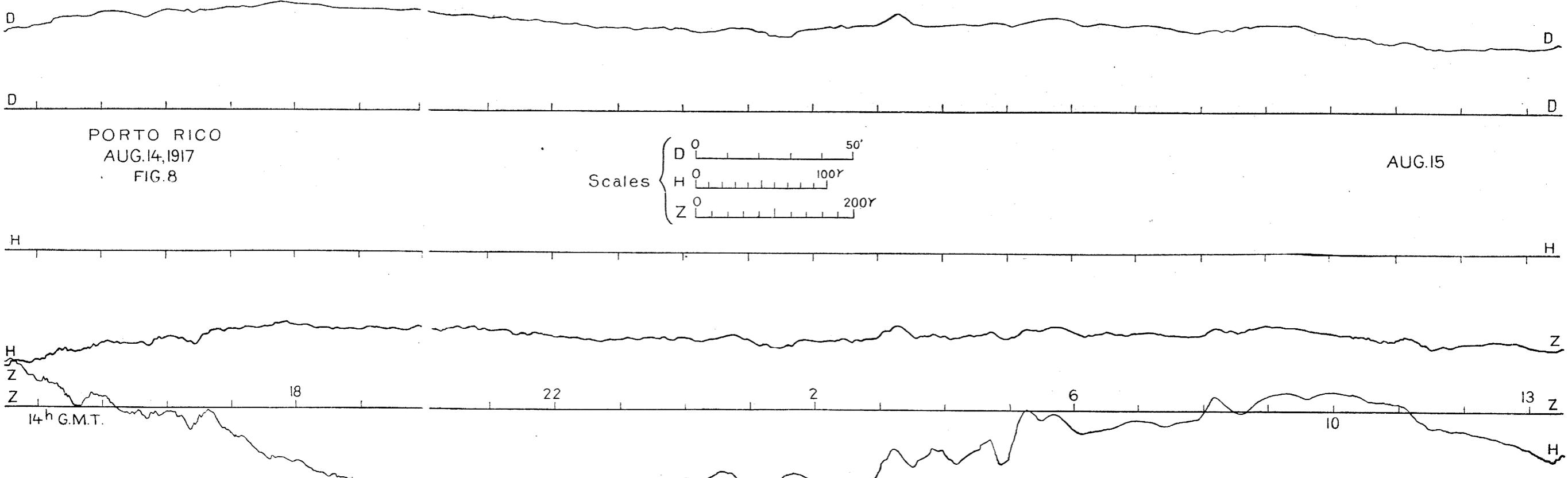
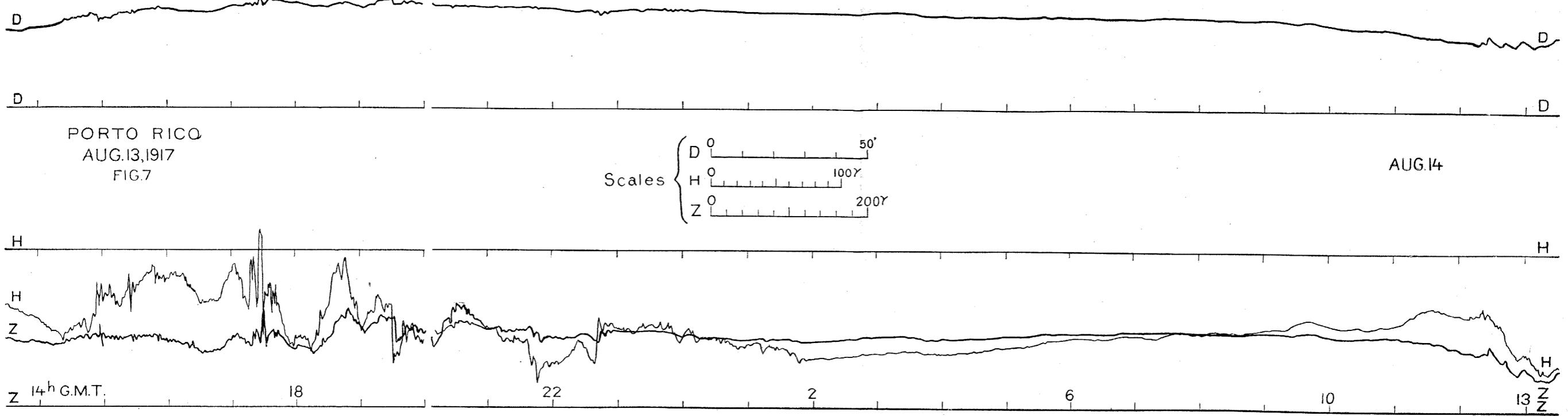


Scales

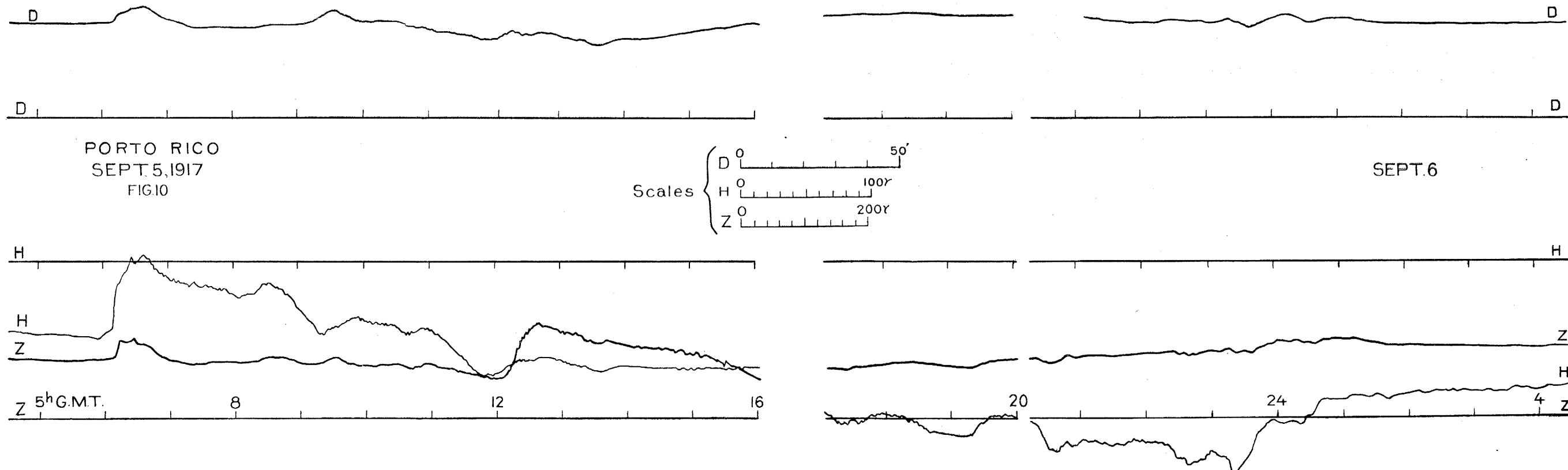
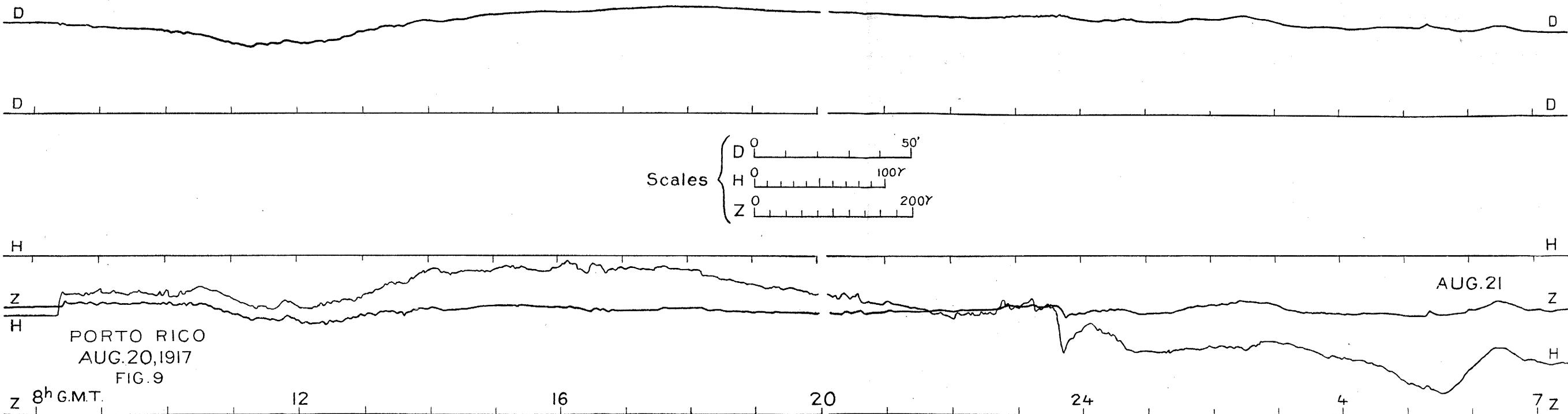
D	0	50'
H	0	100Y
Z	0	200Y



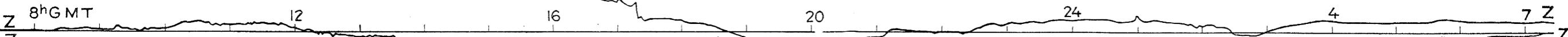
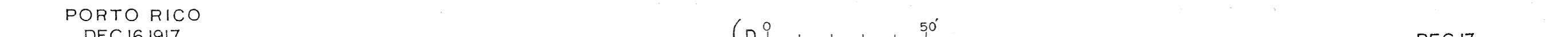
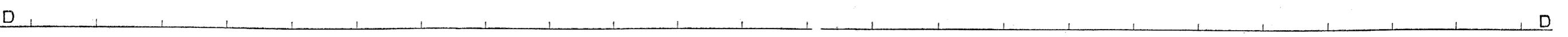
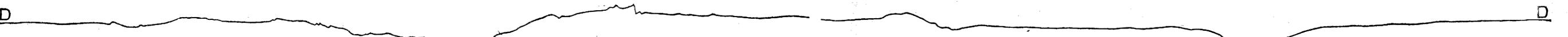
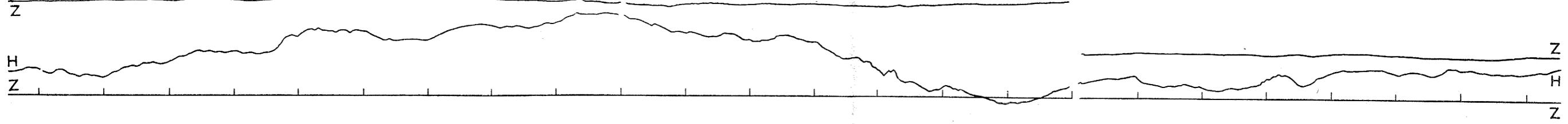
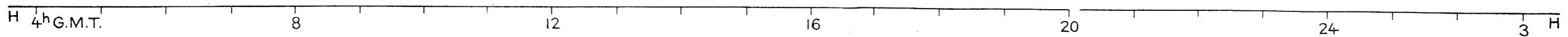
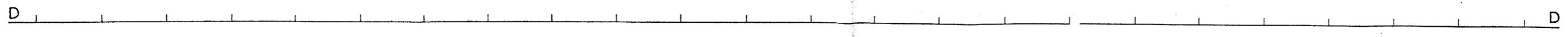




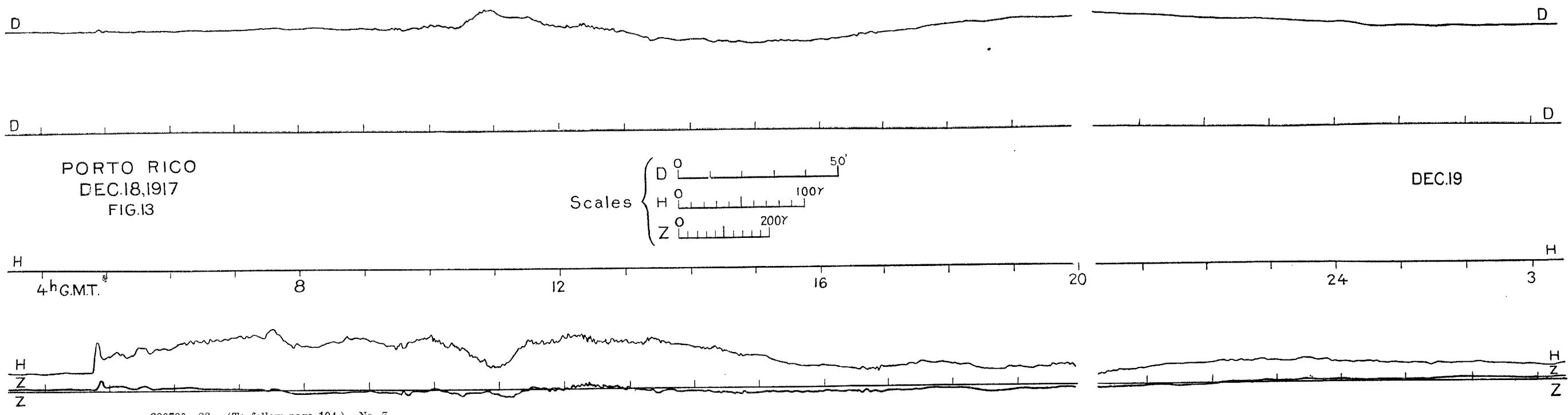




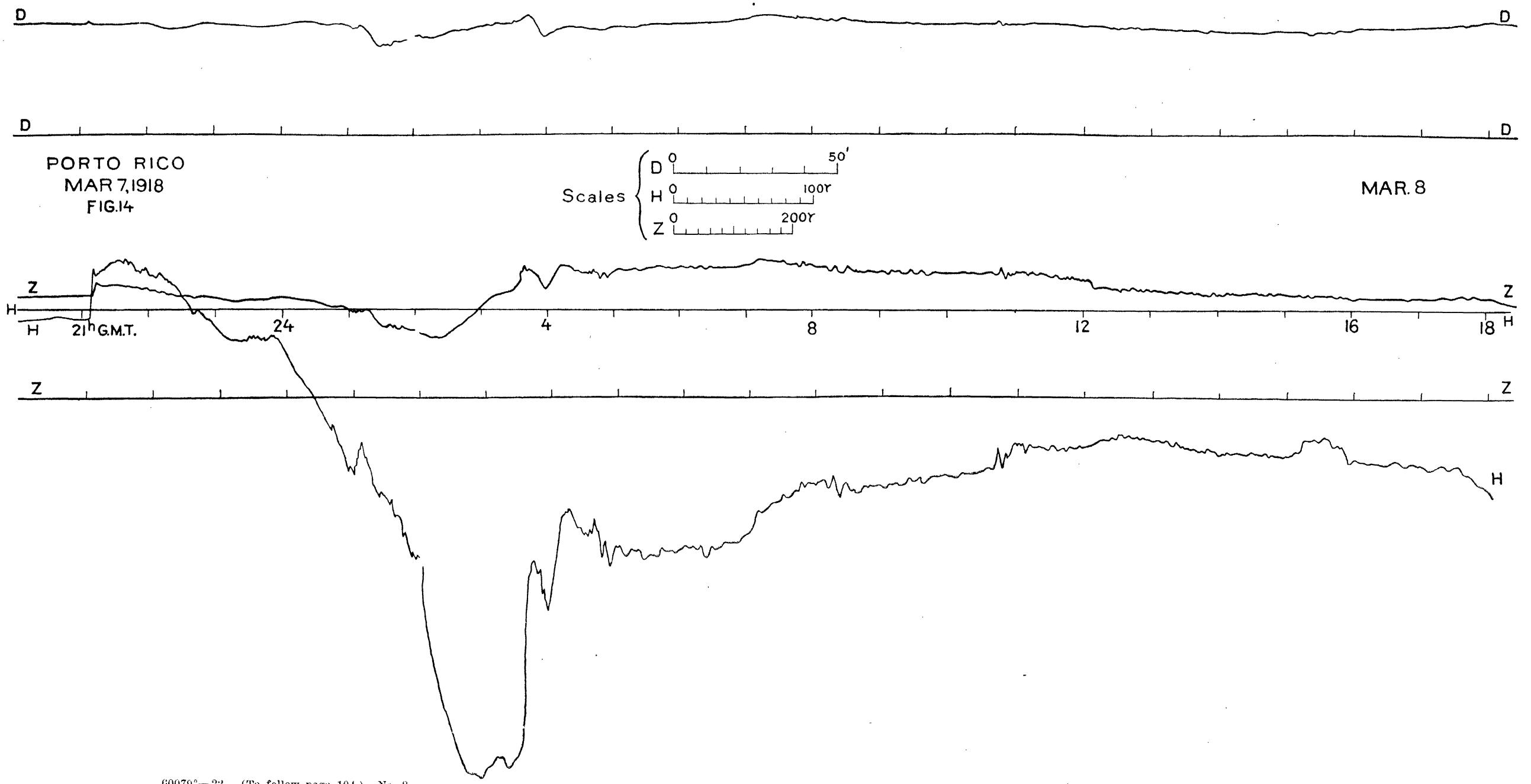




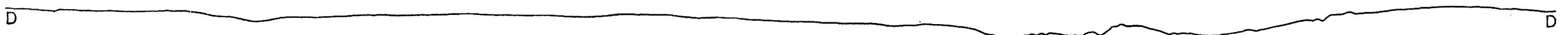








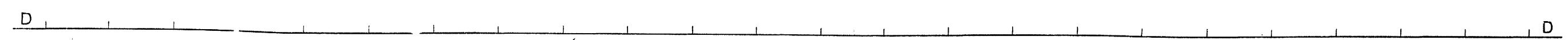
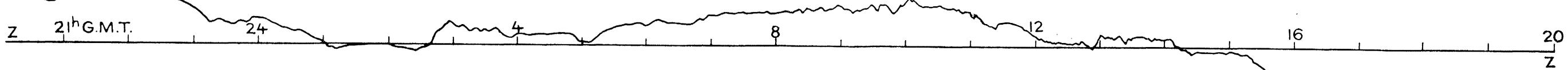
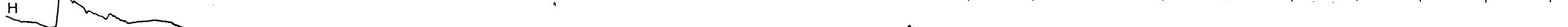
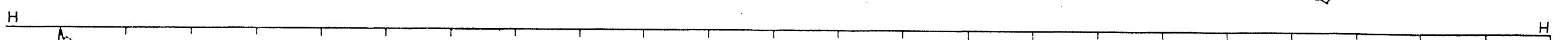
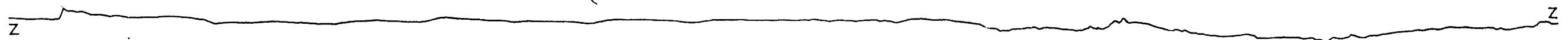




PORTO RICO  
APR. 10, 1918  
FIG. 15

Scales {  
D 0 50'  
H 0 100Y  
Z 0 200Y

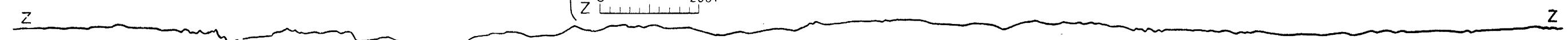
APR. 11



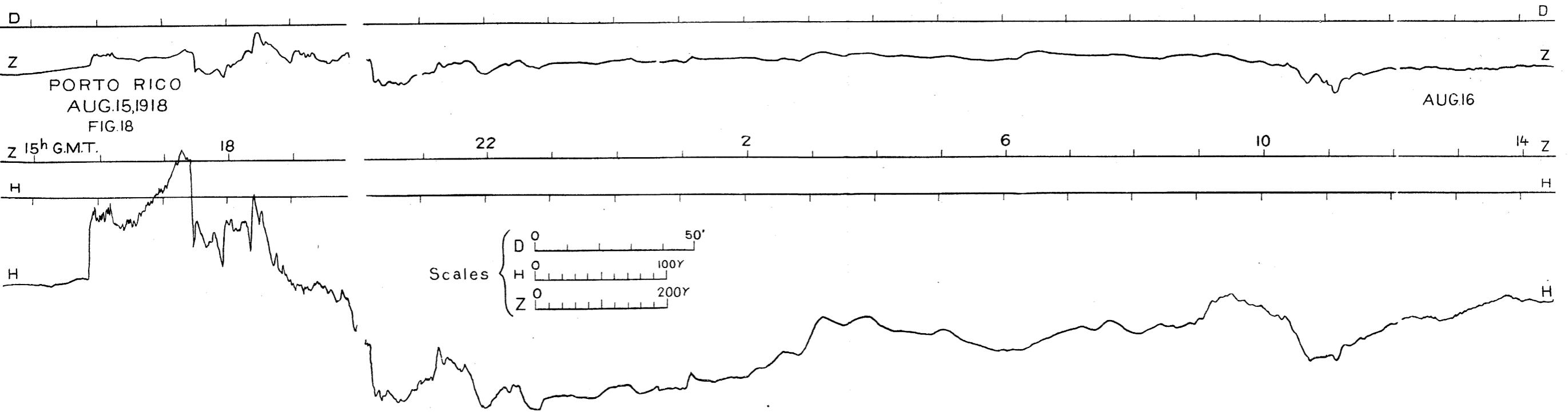
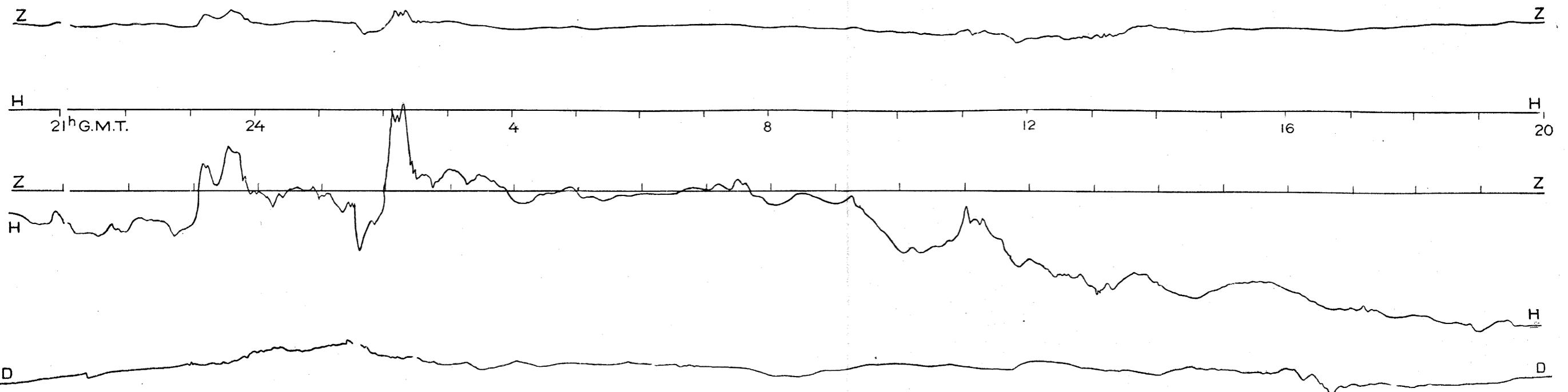
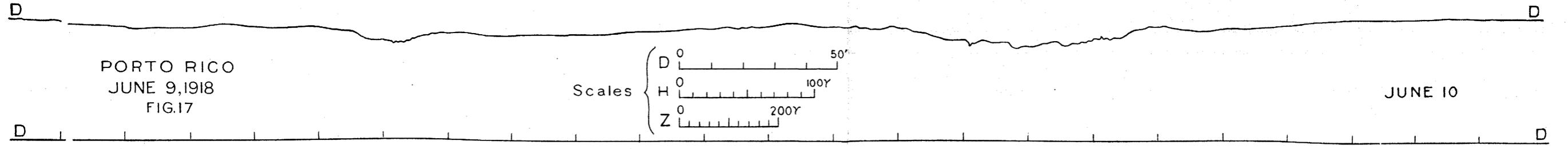
PORTO RICO  
MAY 16, 1918  
FIG. 16

Scales {  
D 0 50'  
H 0 100Y  
Z 0 200Y

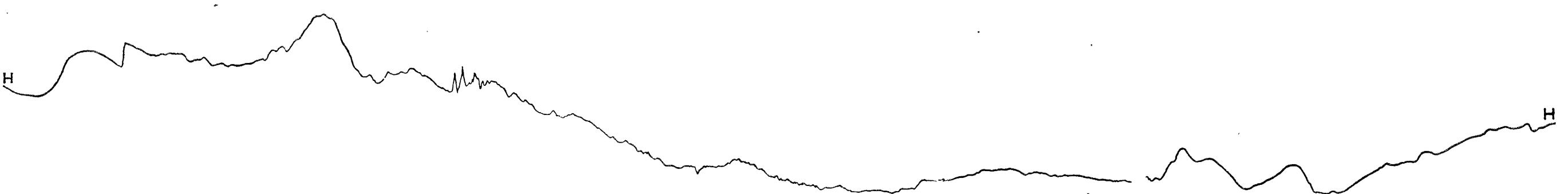
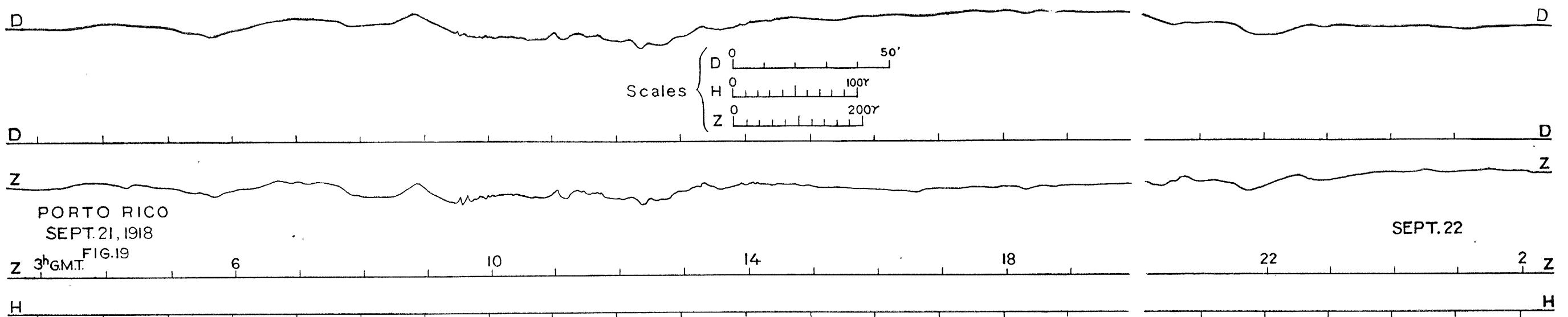
MAY 17





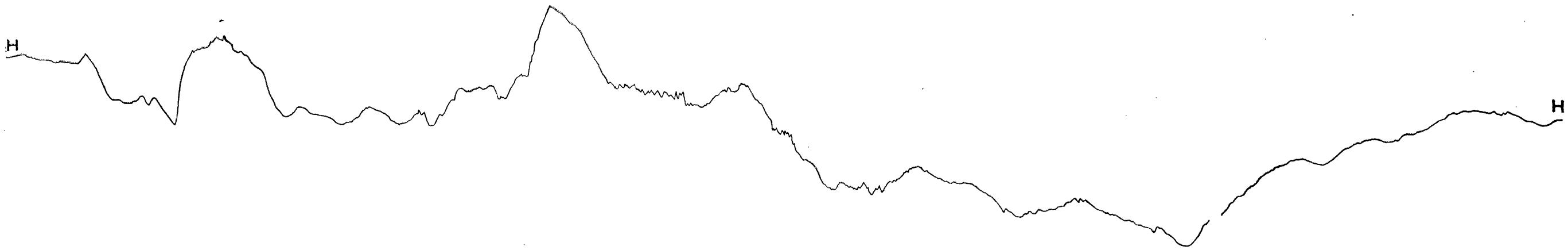
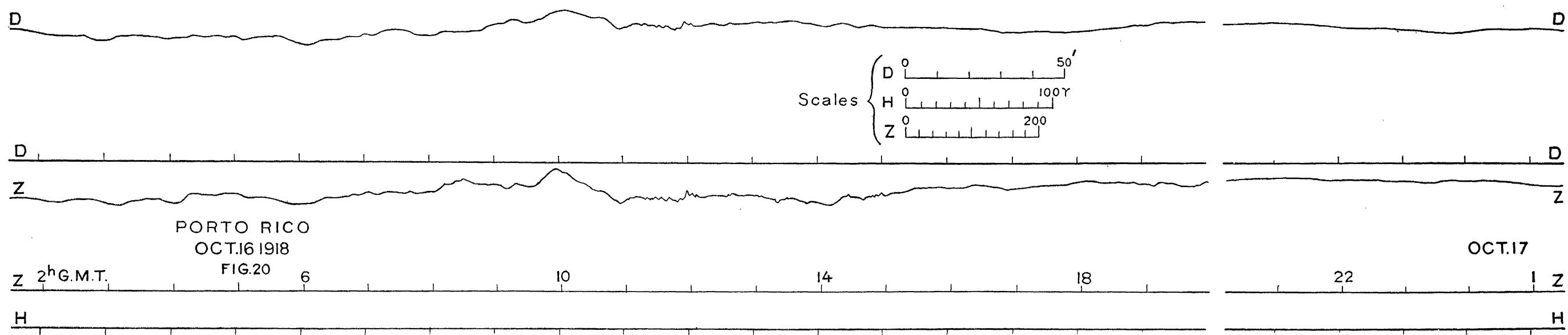






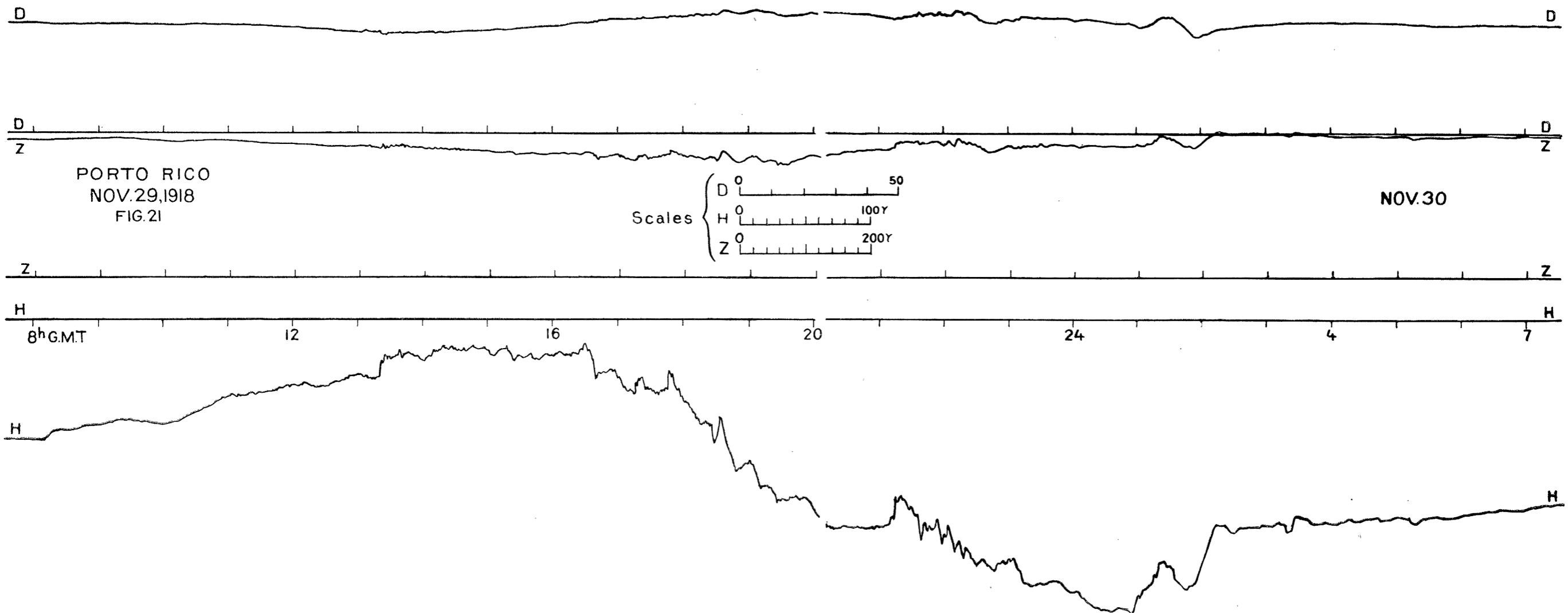
60079°--22. (To follow page 104.) No. 11





60079°—22. (To follow page 104.) No. 12





60079° - 22. (To follow page 104.) No. 13

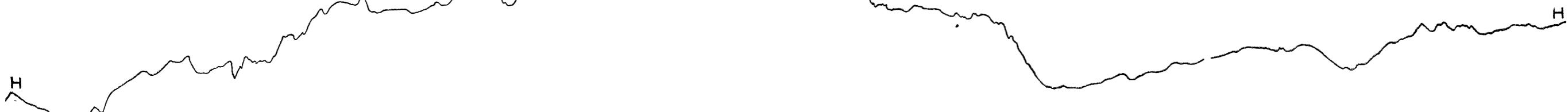
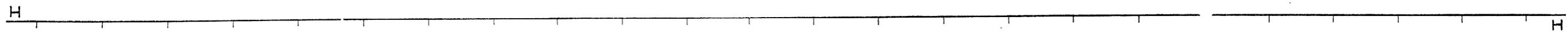
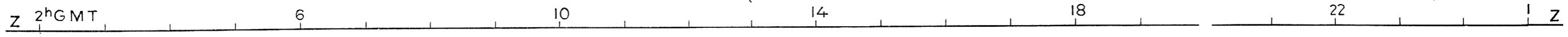




PORO RICO  
DEC 8 1918  
FIG.22

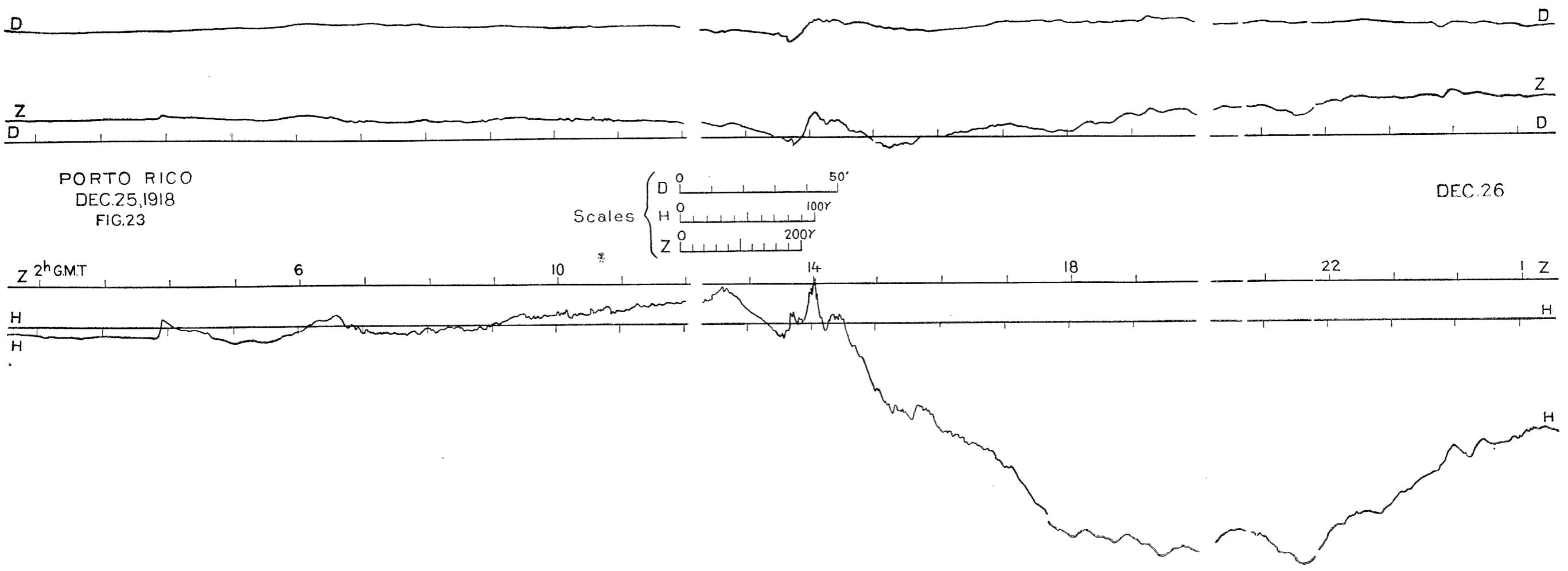
Scales {  
D 0 50'  
H 0 100' Y  
Z 0 200' Y

DEC. 9



60079°—22. (To follow page 104.) No. 14





60079°—22. (To follow page 104.) No. 15

O



